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Archives of Dermatology and Syphilology

VOLUME 29 JANUARY, 1934 NUMBER 1

THE AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

A STEP FORWARD IN THE SUPERVISION OF SPECIALISM

FRED WISE, M.D.

NEW YORK

The practice of a profession affected with a public interest always precedes the establishment of accepted discipline for training in that profession and the development of provisions for the supervision and control of the practice itself. Medicine is no exception to this rule. The time has now arrived, with respect to the general practice of medicine, when preparation for admission is provided by excellently equipped medical schools, and admission to general practice is rigorously controlled by the various states. Almost no provision has been made, however, for the supervision of the more recently developed phase of medical practice, namely, specialism. With a few notable exceptions, the medical schools offer little opportunity for graduate specialization. Moreover, admission to general practice empowers the physician to undertake the treatment of any and all diseases. There are 160,000 licensed physicians in the United States. Any one of these may set himself up as a specialist in any field. Although claiming to be a specialist does not make one so, at present the only inhibitions restricting the licensed practitioner from holding himself out as a specialist are his conscience, his judgment and his pocket-book.

This situation of unregulated specialism is fraught with obvious dangers. Hospitals, general practitioners and laymen possess no standard criteria to apply in the selection of practitioners of the various specialties; they possess no safeguard against unscrupulous or incompetent pseudospecialists. Yet, concededly, such criteria are well-nigh indispensable.

The lay public, moreover, expects of the physician to whom it comes for special attention, a certain superior skill and knowledge. The public, certainly no less than the profession, requires protection from irresponsible specialization. It has the right to demand that the medical profession itself take the responsibility for the competence of those of its practitioners who hold themselves out as being possessed of special ability and skill.

President's Address read at the Fifty-Sixth Annual Meeting of the American Dermatological Association, Inc., Chicago, June 8, 1933.

The fact that the present high development of specialism is of comparatively recent origin might lead to the conclusion that the problem of uncontrolled specialism and its resultant abuses is a modern one. This is not the case. As far back as seventy years ago discussions of this problem were frequent at medical meetings; proposals for the certification of specialists were occasionally offered. The presidential address at the annual session of the American Medical Association in 1866 was devoted entirely to a discussion of specialism. It is high time that the task of supervising the practice of the specialties be undertaken and expeditiously accomplished.

The supervision of the practice of specialties is properly a function of the medical profession; it is both a right and an obligation. Failure to exercise this right, failure to fulfil this obligation, can have but one ultimate result: regulation by the state.

ESTABLISHMENT OF THE BOARD

It was with a sense of the dangers inherent in uncontrolled specialism and with a view to providing the best possible machinery for certification of specialists in our field that, at the 1931 meeting of the American Dermatological Association and of the Section on Dermatology and Syphilology of the American Medical Association, committees were appointed to investigate the desirability of forming a board for the certification of specialists in dermatology and syphilology similar to the boards theretofore created by the ophthalmologists, the otolaryngologists and the obstetricians and gynecologists.

In 1932, on the acceptance of favorable reports by the committee, the American Board of Dermatology and Syphilology was formed by the appointment of four members from each of the two organizations. In the same year, the newly created board held two meetings and completed its organization. It will hold its first examinations in 1934.

The task of organizing the American Board of Dermatology and Syphilology was a comparatively simple one, for we had before us the three similarly functioning boards, representing the only really adequate attempts at certification of specialists in the United States. The oldest of these boards, the American Board of Ophthalmology, founded in 1916, has given certificates to nearly a thousand candidates, a number nearly equal to the number of physicians limiting their practice to ophthalmology.

The experience of these three boards was available to us. Their form and method of functioning provided the models for our board.

The primary function of the Board is to determine the competence of specialists in dermatology and syphilology. It will prescribe standards of fitness and will grant its certificate to candidates who, having volun-

tarily submitted to its examinations, are found to meet its requirements. The Board proposes also to make public, for the benefit of hospitals, medical schools, members of the medical profession and the lay public, lists of physicians who have been certified.

The curricula of medical schools will be investigated, and adequate facilities for graduate instruction in this specialty will be encouraged, in the hope that in this way the Board may be instrumental in improving the standards of practice and training.

Applicants for certification must establish to the satisfaction of the Board that they are of high ethical and professional standing; graduates of an accepted medical school and physicians duly licensed by law to practice medicine. They must show further that they have received adequate training in dermatology and syphilology, and that they are limiting and intend to continue limiting their professional practice to this specialty.

The Board will appraise each candidate according to his educational opportunities, the men under whom he has worked, the positions he has held—either in hospitals or on the teaching staff of schools—his original investigations, his contributions to literature, his membership in medical societies, and his local and general reputation.

Applicants will be divided into three groups: 1. In the Founders' Group, membership can be obtained only during the first two years of the functioning of the Board. This group will consist of dermatologists and syphilologists whose professional training, attainments and prestige entitle them, in the opinion of the Board, to a certificate without examination.

2. Group A will consist of physicians who have limited their practice to dermatology and syphilology for ten or more years. Such applicants whose training, in the opinion of the Board, will prove to have been adequate will be required to pass oral, clinical and laboratory examinations.

3. Group B will comprise physicians who have practiced dermatology and syphilology for at least five years, including their period of training. Such applicants must have had at least one year of experience in a well recognized clinic or as assistant in the private practice of a well known specialist in this field. They should, if possible, have had at least one year of internship on general service in a hospital. Written and oral examinations and typewritten reports of ten cases which have been personally observed, preferably in private practice, will be required of applicants in Group B.

No rigid rules of judging applicants will be followed. Examinations designed to test the candidate's fitness to practice dermatology and syphilology will be adjusted to the needs of the applicant, according to his years of training and to his experience. Examination papers will be read by an examiner living in a district remote from that of the candidate. Applicants who fail in their examinations may, if they so desire, have the benefit of suggestions as to suitable courses of training for the purpose of overcoming the particular deficiencies in their knowledge of dermatology, as revealed by examination.

Membership in the Board is distributed geographically, to provide greater facility of operation and a more representative functioning. Each applicant must be known to at least one member of the Board. Geographical distribution of members of the Board will make it easier to meet this requirement.

AIMS OF THE BOARD

A. Raising of the Standards of Practice and Training.—First in importance among the results anticipated will be the raising of the standards of practice in our specialty. No longer will any practitioner be able at will to declare himself a specialist, on a par with the physician who, through years of training, has actually acquired the skill necessary to enable him to pratice his specialty with the greatest possible proficiency. The public and the medical profession will have been provided with a yardstick with which to judge the skill and ability of the specialist.

In the second place, standards of training for the practice of dermatology and syphilology will necessarily be raised. The Board will hold regular examinations. Voluntary applicants for certification will be tested and some will fail. What will be the results of this?

First of all, the Board of Examiners will find out where, in the preparation of those who failed, the greatest weaknesses lie. Some indication of what we hope to accomplish in this direction is revealed by the testimony of six members of the Board of Otolaryngology, who, in 1928, as a result of four years' experience, set down their observations as a "constructive criticism of our present system of graduate training in otolaryngology." These observations show clearly that the examination of candidates is a most effective means of determining the weak spots in training for a specialty. In the words of Dr. William P. Wherry: "It has been appalling to the Otolaryngologic Board to realize the carelessness with which graduate instruction is carried on."

Dr. R. C. Lynch, who has been directing the clinical examinations for otolaryngologists, points to surprising deficiencies in training: in some cases, complete neglect of adequate foundation in materia medica; in other cases, inability to handle the mechanics of clinical work. He found that many applicants could not read their own x-ray plates. Reports such as these, disclosing the specific weaknesses found in candidates and discovering special fields in which fundamental grounding is lacking, must be of vital importance to teachers of medicine.

Where no provision for such examinations exists, how can it be determined whether the haphazard training for a specialty received by the young medical graduate is not wholly inadequate in one phase or another, or whether it is not altogether one-sided? Lacking the evidence of examination, we have only the statement of the practitioner himself. How else can the committees now concerned with raising the standards of graduate training learn what phase of the preparation of young physicians for a specialty most requires emphasis or revision?

The result of bringing to light specific weak spots in graduate medical training will be to stimulate the movement—so strongly urged by the Subcommittee on the Training of Specialists of the New York Academy of Medicine Committee on Medical Education, and by the Council on

Medical Education and Hospitals of the American Medical Association—toward providing the young medical graduate with opportunities for systematized study. With the establishment of higher standards for the specialist, definite educational facilities will be demanded in order that the young medical graduate may fulfil the requirements of the qualifying board. Such demands do not long remain unanswered. It will be the privilege of the Board, by investigation and encouragement of adequate facilities for graduate instruction in the specialty, to make concrete and forward-looking contributions to the academic preparation of dermatologists.

Today, there are only six American universities which have established complete departments or separate courses for the preparation of specialists. Many hospitals, however, particularly those devoted to the specialties, have established residencies of from one to two years to serve as training for a specialty. It is greatly to be desired that the two year hospital residency for specialized training, following a rotating internship, will become more generally available to the person who hopes to become proficient in a specialty. Despite the generous number of fellowships available for graduates in medicine, there are undoubtedly several times as many well trained applicants for the program of residency in a hospital for training in a specialty than there are places available. Specialism is the outgrowth of the effort to render more efficient medical service. The man who looks forward to setting himself up as a specialist must be given every encouragement to qualify as an expert. Where programs of residency in a hospital exists today, they are proving of great value, and fail only in so far as they are inadequate to meet the needs of all who should be able and wish to benefit by such a course of training. Opportunities for careful and systematically arranged training for the specialties are vitally needed and must be developed.

It will be the duty and the privilege of the national qualifying boards, such as the one just established in dermatology, to cooperate with all organizations now striving for better programs of graduate education. Dr. Irving S. Cutter said, speaking on the "Function of the Medical School" at the 1933 Annual Congress on Medical Education and Licensure:

> Regardless of the chief rôle of the organized medical school, namely, undergraduate instruction, every school, within a reasonable time, will be engaged to some extent in graduate training. It would appear that the development of suitable residencies of from one to three years, preferably in teaching hospitals, would offer the best opportunities for graduate training, and it would seem reasonable that residencies under university administration would typify the best in graduate education and in and of themselves constitute the graduate schools of the future.

The man who has failed in his examination must set himself zealously to the task of making of himself a real dermatologist. The experience of the Board of Otolaryngologists reveals that unsuccessful candidates have been grateful to the Board for the stimulus given them, that they have availed themselves of the opportunity to have their weaknesses pointed out, and that they have accepted the suggestions offered for eliminating those weaknesses.

Dr. William P. Wherry of the Board of Otolaryngologists said:

> The appreciation of the purpose of the Board by the candidate who failed, together with his apparent improvement, has been one of the outstanding facts that make the sacrifice of time a compensation to the individual members composing the American Board of Otolaryngology.

It is our hope and belief that the Board of Dermatology will serve the aspiring specialist in this field in the same manner.

With higher standards in the practice of dermatology as a specialty we may assume a resultant limitation in the number of men practicing the specialty. Such a limitation is a desirable end. In the larger cities, particularly, specialism has developed beyond actual needs. It has more appeal than general practice; it is more highly regarded by the public and is more lucrative. No one denies its value. It is an integral and essential part of medical practice, but it should build upward, to ever higher and higher standards and should not be allowed to spread itself ever wider and thinner.

B. Significance of Certification.—The certificate granted by the Board will not of itself confer any degree or legal qualification. It is emphatically the intention of the Board not to interfere with the professional activity of any duly licensed physician. The Board was created to supervise, not to control. Its sole aim is to elevate the standard of qualification for specialists.

The importance of certification of specialists cannot be overemphasized. The certificate should, and we believe it will, provide not only the lay public, but also all other employers of specialists—hospitals, societies and universities—with an adequate and dependable standard. The certificate of each of the three qualifying boards which are already functioning is accepted as one of the alternative credentials required for qualification for fellowship in the sections of the New York Academy of Medicine. The Board of Regents of the American College of Surgeons recognizes such certificate as evidence of professional fitness entitling applicants to fellowship. The state qualifying board of New Jersey accepts it as partial proof of competence in a specialty.

The entire medical profession can accept and should demand the certificate of the Board as an evidence of skill. Within a few years, it is hoped, certification will become a prerequisite for appointment to any

position requiring the services of a specialist in a hospital, society or school. And, indeed, it is not too much to hope that the lay public will in time become so fully aware of the value of certification that consultation of a specialist who has not received this badge of recognition will not be considered.

Obviously, the man who has reached a high degree of skill in dermatology, regardless of how meager his formal graduate education may be, will be given full recognition. Certification will not be evidence merely of so many credit-hours of academic work or of so many months of assistantship in a specialized department. It will mean much more than that. It will mean that, regardless of how he obtained it, the successful candidate possesses a high degree of skill, that he is, in the words of Dr. Wherry, a "safe man."

OTHER PLANS OF SUPERVISION OF SPECIALISTS

In view of the universal recognition of the unsatisfactory conditions growing out of uncontrolled specialism and the frequently arbitrary and unjustified assumption of the title and practice of a specialist, several other plans of supervision have been proposed.

In several European countries, the problem of qualifying specialists has been approached in different ways and solved in varying degree. It has been dealt with, to some extent successfully, in Denmark, Norway, Austria, Germany, Great Britain and Turkey, and in Alberta, Canada. The qualifications prescribed in Denmark for recognition in a specialty are the most rigorous. Under this plan, a specialists' committee, elected annually at the meeting the Danish Medical Association, in consultation with two recognized specialists in the particular field, considers and accepts or rejects applications of members of the association who aspire to recognition as specialists. No member of the medical association may advertise as a specialist without having received the required recognition. A fundamental part of the work of the committee involves the consideration of the course of training for each specialty, in consultation with the association of specialists in each field in which there is such an association. The basic requirements are the same for all of the specialties. The applicant must have graduated at least six years previously, having served as a recognized intern for one year (six months in medicine and six months in surgery), and must have had at least two years of training in practical work as a physician outside of his special field.

In addition to this basic preparation, each of the specialties has its own specific requirements, including varying periods of internship or assistantship in different branches.

In the United States, the State Medical Society of New Jersey has adopted a plan for the control and certification of specialists. The

Council on Medical Education of the American Medical Association has discussed the possibility of certifying specialists. The New York Academy of Medicine plans to have a register of specialists.

But none of these plans is essentially in conflict with our national qualifying board. None of these plans provides for an examining board, which the American Board of Dermatology and Syphilology essentially is.

The plan of the State Medical Society of New Jersey, while it serves a valid purpose, does not go far enough. Under this plan, a state society committee and county society committees on credentials of specialists are to be set up to receive and consider applications of members of any county medical society seeking recognition from and certification by the State Medical Society of New Jersey. Applications will be accompanied by such documents and evidence as the applicant believes to be entitled to consideration. The applications and documents will be considered first by the committee of the county society, which will pass particularly on the moral, ethical and personal attributes of the applicants, and then, if approved, the application will be referred to the state committee, which has the privilege of calling into conference, as it wishes, one or more specialists from the list of the State Medical Society of New Jersey to serve in an advisory capacity.

The adoption of this plan in New Jersey, in June, 1932, was admittedly an attempt to prevent the passage of a state law, an "effort on the part of the profession to settle its own affairs, to give the public that portion of its demands which are just; and to protect the profession from radical legislation enacted by persons unfamiliar with professional affairs"—namely, the legislators.

So far as the adoption of this plan keeps the control of the affairs of the medical profession out of the hands of politicians, where, clearly, it does not belong, it is wholly commendable.

But, from our point of view, it has three disadvantages, as compared with the plan of a national qualifying board in each specialty. In the first place, it does not propose to set up an examining board, and therefore stops short of the valuable work which such a board can accomplish, and of which I have spoken.

In the second place, the adoption of such a plan by one state presupposes the adoption of similar plans by other states. But all the states do not have a medical society so organized that it can establish suitable machinery for the certification of specialists. And assuming, which is highly improbable, that each state would set up such machinery, how would the problem of a uniform standard throughout the country be solved thereby? Regardless of how high a standard the Medical Society of New Jersey may set for its specialists, it cannot enforce this standard beyond the boundaries of its own state. And I think it will be generally

acknowledged that unless it provides for uniformity of standards throughout the United States, the value of any plan of certification is seriously curtailed.

In the third place, a qualifying board such as ours, composed of specialists in the field in which the candidate is to be examined, presumably will, by virtue of complete familiarity with the details of the specialty, demand a higher standard of achievement than would a general committee such as that established in New Jersey, which will operate in all specialties. While in New Jersey the committee has the privilege of calling on specialists for advice, specialists so drafted are likely to serve only once or rarely; they will be serving merely in an advisory and not in a plenary capacity.

But, although the plan adopted by the state of New Jersey does not solve the problem for the country, and solves it only partly for New Jersey, its adoption has served to keep the qualification of specialists in New Jersey out of politics. There will be no conflict between this state board and our national qualifying board. There will, rather, be cooperation, for, as I have said, one of the qualifications for certification by the state board will, admittedly, be the certificate of one of the national qualifying boards in any specialty in which such a board has been set up.

A plan of certification of specialists not unlike that followed in Denmark has been proposed for this country, to be established by the Council on Medical Education and Hospitals of the American Medical Association. But for the council to set itself up as an examining board for each of the specialties would be a task which the council would hardly relish, and without an examination, much of the virtue in a plan of certification would be lost. It is claimed that a plan of certification by the council would eliminate the possibility of injustice through personal and professional prejudice, which might prevail where the qualification of specialists is in the hands of so-called "self-controlled organizations." I may safely say, and I believe that all will agree with me, that fears of such prejudice are wholly ungrounded. The national qualifying board in dermatology will perhaps be guilty of one form of prejudice, the prejudice which fights along every line for the maintenance of the highest standards.

CONCLUSION

The American Board of Dermatology and Syphilology is the fourth national qualifying board to be set up in the specialties. The establishment of similar boards is now anticipated for pediatrics, neuropsychiatry, orthopedic surgery, radiology and other specialties. It is to be hoped that within a few years, such representative boards will be operating in all the specialties. When such boards are functioning, there will no longer be any need for the state to interfere in the regulation of

specialists, and thus dangers from political interference will be eliminated. The necessity for any special legislation by the state or for the establishment of state boards of examiners in the specialties, with, necessarily, a variety of standards throughout the nation, will be entirely obviated.

Much interest has been expressed in cooperative plans designed primarily to coordinate the various qualifying boards and to provide also for a plan of cooperation between these boards and the organizations already operating in the general medical field. Such a coordinating body, called, perhaps, a national council on specialization, might be made up of two representatives from each special board, cooperating on the one hand with the National Board of Medical Examiners and with one or two members of the Council, and on the other hand with the American Medical Association, similarly represented in the Council.

There is every assurance that all the national qualifying boards may look both to the National Board of Medical Examiners and to the American Medical Association for aid and cooperation. The National Board of Medical Examiners is already urging the further organization of national qualifying boards, and has exchanged assurances of cooperation with those already in existence. While it is fully equipped and prepared to conduct examinations in the fundamentals of medicine, the National Board of Medical Examiners has never essayed to set itself up as an examining board for the specialties. It has confined itself to the examination of undergraduates and should continue to do so. But it can and should, through such a liaison committee as is here proposed, aid in establishing a national policy in those matters which concern all the boards, at the same time leaving the national qualifying boards in each specialty free to operate, each autonomous in its own field.

The American Medical Association, while it should not set itself up as an examining board in the specialties, also has a vital function to perform in cooperation with the national qualifying boards. The American Medical Association represents the general medical profession. As such, it is best fitted to maintain the registry of specialists for the entire country. By publishing, in its directory and in its journal, the list of those certified by the national boards, it will be performing a very valuable service to the profession. During the past three or four decades, the Council of the Association has served just such a purpose, through its journal, by raising the standards of general medical practice. In the same way, it can prove of inestimable value in the regulation of the specialties.

In addition, through the Council on Medical Education the American Medical Association can furnish surveys in regard to specialized internships and residencies in hospitals; it can investigate the training given in

graduate schools and can make public its findings, thus materially aiding the national qualifying boards in their efforts to raise the standards of training.

The attitude of the American Medical Association is revealed by Dr. Louis B. Wilson, speaking on the rôle of the American Medical Association registry at the annual meeting of the Committee on Education and Licensure:

> Except in the case of the specialty groups . . . the American Medical Association would find it impossible at present to obtain the information . . . concerning the recognized medical and surgical specialists. The American Medical Association is not an examining body and is not properly organized to become an examining body or a qualifying body. Where shall it turn for such information? From their experience and our confidence in their results, it would seem that the most intelligent procedure would be for each specialty to set up its own qualifying board. It seems to me that there is no question that each specialty can best determine authoritatively what individuals are competent to practice that specialty. I think we will agree that it is better that each should be a national qualifying board rather than a state or a county qualifying board. It remains only for the several national organizations in each of the specialties to get together and set up such a qualifying board.

While it would seem best that the central directing head of the specialties should remain in the hands of a council directed by representatives of the various specialties, it is to be hoped that cooperation, such as is here suggested, will be encouraged. Only in this way can the medical profession achieve improvement in the nation-wide standards of specialism.

The acceptance of certification by a national qualifying board as a prerequisite to all desirable positions open to a specialist may be expected to result in a steady increase in the number of applications for certification. The certificate should be a prerequisite to membership in our special society. The time is coming when any college, hospital or society which proposes to add to its staff a specialist in dermatology, should accept only applicants who possess the certificate of the Board.

The lay public, which should be vitally interested, knows nothing of the significance of the Board's examination and certification. Wherever the opportunity presents itself, the public should be informed of the privilege which it now has of calling on specialists of whose qualifications and competence it can be assured.

The Board alone cannot effect the desired ends of providing and raising standards of practice of specialists in dermatology and syphilology. The active cooperation of every member of the American Dermatological Association is essential. It is only in this way that standards in our work can be maintained at the highest level and that the greatest service to humanity will be rendered by specialists in our chosen field.

LXVII.—LIPIDS OF THE SKIN SURFACE

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AND
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ST. LOUIS

The fatty substances of the surface of the skin are physically and chemically of great importance in the economy of the body. Not only do they provide a water-repelling protective film for the skin and its appendages, and serve to keep the skin supple and soft, but there is reason to believe that they contain the precursor of vitamin D and perhaps other valuable substances which are activated by irradiation at the surface of the skin. It is also possible that they play an important part in many as yet little understood skin phenomena such as "contact dermatitis."

It seemed important, therefore, to know something of the nature of these lipids, because of theoretical as well as practical interest, since applying similar substances may prove of benefit in many cases of xeroderma.

For the present knowledge concerning the nature of the superficial lipids of the skin one is indebted to the painstaking efforts of Unna and Galodetz,[1] and to the studies of Eckstein and Wile [2] and a brief analysis by Pachur.[3]

According to Unna and Golodetz, the fatty substances found on the skin arise from at least three sources: the sebaceous glands, the sweat glands and the epidermal cells. To demonstrate these different sources of lipids, they compared the lipids of a sample of sebum expressed from comedones, the lipids extracted from cotton pads worn on the soles to collect the perspiration and its lipids and the lipids extracted from shavings of the horny layer of the sole. Their findings are given briefly in table 1.

Studies, observations and reports from The Barnard Free Skin and Cancer Hospital and the School of Medicine, Washington University, Departments of Dermatology and Medicine, service of Drs. M. F. Engman and W. H. Mook, St. Louis.

1. Unna, P. G., and Golodetz, L.: Die Hautfette, Biochem. Ztschr. **20**:469, 1909.

2. Eckstein, H. C., and Wile, U. J.: The Cholesterol and Phospholipid Content of the Cutaneous Epithelium of Man, J. Biol. Chem. **69**:181, 1926.

3. Pachur, R.: Quantitative und qualitative Bestimmung des menschlichen Hauttalges, Dermat. Ztschr. **60**:486, 1931.

Pachur collected a sample of lipids by washing the body with a fat solvent and found that it was made up of 88.26 per cent neutral fat, 4.20 per cent cholesterol esters and phospholipids and 7.54 per cent free cholesterol.

Eckstein and Wile studied the cholesterol and phospholipid content of the lipids of exfoliated skin, and reported values for cholesterol ranging from 13 to 24 per cent of the total lipid, 90 per cent of which is free, and values for the phospholipid content ranging from 2.5 to 3.15 per cent of the total lipids. These workers also reported that the fatty acids of these lipids have an iodine number of 62 and that the unsaturated fatty acids are present in essentially the same proportion that they are found in the lipids of the subcutaneous tissues, or that 0.4 per cent form bromine addition products that are insoluble in ether and 0.5 per cent products that are insoluble in petroleum ether.

TABLE 1.—*Comparison of Lipids from Sebum, Hand Sweat and Horny Layer*

	Neutral Fat, per Cent	Unsaponifiable, per Cent	Fatty Acid, per Cent	Cholesterol		Oxycholesterol
				Free, per Cent	Total, per Cent	
Sebum	....	30.5	44.9	....	2.80	Much present
Hand sweat	71.4	28.4	55.4	0.64	1.43	Some present
Horny layer	83.7	36.3	52.2	10.71	19.62	Absent

The present study was undertaken with a view to obtaining more specific information concerning the nature of the lipids which constantly bathe the surface of the body.

EXPERIMENTAL WORK

Materials.—Composite samples of the superficial lipids of the skin were obtained by washing the upper portion of the bodies of young men with fat-free cotton sponges moistened with alcohol and ether, and extracting the sponges in continuous extractors. About fifty young men between the ages of 25 and 30, with apparently normal skin, supplied the material for one of the samples analyzed.

Since sebaceous glands are not found in the skin of the palms or soles, the fatty materials in these regions must arise from the sweat glands and epidermal cells themselves. Samples consisting chiefly of lipids inherent in the horny layer were obtained by extracting shavings from the soles.

Extraction.—The cotton sponges were extracted with hot alcohol vapor in a continuous extraction apparatus for twelve hours. The alcohol in the extraction flask was changed after the first two three-hour extraction periods. The material from the soles was cut as fine as possible with scissors and placed in a previously extracted muslin bag and extracted with hot alcohol vapors for from eighteen to twenty-four hours. The alcohol was also renewed after the first two three-hour extraction periods.

The alcoholic extracts of a given sample were combined and evaporated under diminished pressure. The residue was taken up in ethyl ether and washed in a separatory funnel with distilled water. The ether layer was made up to volume in

a calibrated flask. Aliquot portions of this ether solution were used for the micro-estimation of cholesterol and lipid phosphorus. The materials studied were thus limited to those which were insoluble in water and soluble in ethyl ether.

Phospholipids.—The acetone precipitation method for the separation of phospholipids was found to be unsatisfactory, not only because of the extremely small phospholipid content, but also because the precipitate which formed when the concentrated lipid mixture was poured into acetone was not phospholipid but a cholesterol compound which was not completely soluble in absolute ether. Phospholipids were therefore estimated indirectly from the value for lipid phosphorus found by the Whitehorn method.[4]

Cholesterol.—Cholesterol and cholesterol esters were estimated in aliquot portions of the original lipid extract, a modification of the Okey digitonin method being used.[5]

Free Fatty Acids.—After aliquots for the microprocedures had been taken, the remaining ether extract was shaken in a separatory funnel with tenth-normal potassium hydroxide. The aqueous layer was separated and shaken with 2 portions of ethyl ether which were separated and added to the original extract. The alkaline solution was acidified with hydrochloric acid, and the liberated fatty acid was extracted by shaking with 3 separate portions of ether, which were later combined and washed with distilled water. The ether solution was evaporated in a tared flask, dried in a vacuum desiccator and weighed.

Unsaponifiable.—The ether solution of total lipids less the free fatty acids was evaporated, and the residue was saponified by refluxing for two hours on the steam bath with a 3 per cent alcoholic sodium ethylate solution. The saponified mixture was poured into 5 volumes of distilled water in a separatory funnel, and the unsaponifiable material was extracted with ether. Three extractions were made, and the combined extracts were washed with water and evaporated to dryness. The residue was taken up in petroleum ether, transferred to a weighed flask, evaporated, dried and weighed.

Saponifiable.—The alkaline layer of the saponification mixture was acidified with hydrochloric acid and extracted three times with ether. The combined ether extracts were washed with water and evaporated under a jet of carbon dioxide in a tared flask, dried in a vacuum desiccator and weighed.

Separation of Solid and Liquid Acids.—The fatty acids of the saponifiable portion were separated into two fractions based on the solubility of their lead soaps, according to the method of Twitchell.[6]

Liquid Fatty Acids.—The alcoholic solution of soluble lead soaps was evaporated under diminished pressure, and the soaps in the residue were decomposed with dilute nitric acid. The liberated fatty acids were extracted with ether, evaporated under carbon dioxide in a weighed flask, dried and weighed.

Bromine Derivatives.—The liquid acids were dissolved in absolute ethyl ether, cooled to 0 C. and brominated according to the method used by Baughman and

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4. Whitehorn, J. C.: Lipoid Phosphorus in Blood Plasma, J. Biol. Chem. **62**:133, 1924.

5. Okey, Ruth: A Micro Method for the Estimation of Cholesterol by Oxidation of the Digitonide, J. Biol. Chem. **88**:376, 1930.

6. Twitchell, E.: The Precipitation of Solid Fatty Acids with Lead Acetate in Alcoholic Solution, J. Indust. & Engin. Chem. **13**:806, 1921.

Jamieson,[7] and separated into fractions according to their solubility in ether and petroleum ether.

Solid Fatty Acids.—The insoluble lead soaps were decomposed with dilute nitric acid and the liberated acids extracted with ether, washed several times with distilled water, and evaporated in a previously weighed flask.

RESULTS

The values found for the composition of three samples of lipids from the two sources are given in table 2 as percentage of total lipid.

The total fatty acids from two samples of lipids of the stratum corneum were separated into solid and liquid acids by the lead soap method and gave the following results:

	A	B
Liquid fatty acids	38.8%	44.6%
Solid fatty acids	61.2%	55.4%

TABLE 2.—*Composition of Lipids from the Surface of the Skin and from the Stratum Corneum*

Number	Weight of Sample	Unsaponifiable, per Cent	Sterol		Fatty Acids		Phospholipids, per Cent
			Total, per Cent	Free, per Cent	Combined, per Cent	Free, per Cent	
Lipids of Skin Surface							
1	5.095	27.8	11.8	7.9	39.3	14.7	1.16
2	1.780	29.2	13.0	9.8	30.5	23.0	1.07
3	0.989	34.7	15.5	....	38.2	25.3	....
Lipids of Stratum Corneum							
1	1.924	36.1	20.3	16.5	17.1	35.2	
2	4.547	32.2	23.9	19.8	21.8	33.5	
3	1.575	26.8	21.8	18.2	23.2	27.4	

The liquid fatty acids had iodine numbers of 74 and 78, as determined by the method of Rosenmund and Kuhnhenn.[8] These values are surprisingly low for liquid fatty acids and indicate the presence of liquid saturated acids.

The liquid fatty acids, when brominated, formed a small amount of material insoluble in ether corresponding to 0.3 per cent of the liquid acids and material insoluble in petroleum ether corresponding to 1.1 per cent of the liquid acids. The remaining 98.6 per cent of the fatty acids formed bromides soluble in petroleum ether. The actual weight of this fraction, however, when multiplied by the theoretical value of 63.82 per cent for dibromstearic acid accounted for but 75.2 per cent of the

7. Baughman, W. F., and Jamieson, G. S.: The Chemical Composition of Soya Bean Oil, J. Am. Chem. Soc. **44**:2947, 1922.

8. Rosenmund, K. W., and Kuhnhenn, W.: Eine neue Methode zur Jodzahlbestimmung in Fetten und Oelen unter Verwendung von Pyridinsulfatdibromid, Ztschr. f. Untersuch. d. Nahrungs- u. Genussmitt. **46**:154, 1923.

liquid fatty acids, which also points to the presence of saturated fatty acids in this fraction.

The lead soap method also failed to remove all of the unsaturated acids from the solid acids, since they were found to have an iodine number of 18.4. In spite of the unsaturated fatty acid content and the semisolid state of these acids, they did not become clear in the capillary melting point tube until the temperature reached 65.9 C.

With Twitchell's melting point lowering method,[9] and Kahlbaum's pure stearic, palmitic and myristic acids, the solid acids were found to contain 36 per cent palmitic acid, but no stearic or myristic acid.

The neutral equivalent or combining weight of the solid acids determined by titration with alcoholic alkali was 398. The theoretical value for stearic acid is 284.29 and that for palmitic acid, 256.26. This indicates the presence of higher fatty acid, polymerization products of lower fatty acids, or what is more probable, the destruction of acid carboxyl groups by oxidation of the fatty acid to hydroxl acids and the formation of lactones or similar mechanisms. The amount of material was not sufficient for the isolation or identification of these products.

A similar study was made of the fatty acids of the lipids from the surface of the skin. The free fatty acids had the following iodine numbers and neutral equivalents:

	Neutral Equivalent	Iodine Number
1.	299	41.4
2.	290	40.4
3.	298	43.7

Of the free fatty acids, 41.7 per cent formed soluble lead soaps and 58.3 per cent insoluble lead soaps.

The solid acids had an iodine number of 19, and contained 35 per cent palmitic acid but no stearic or myristic acid.

The liquid acids formed no other insoluble bromides; 5.4 per cent formed material which was insoluble in petroleum ether, and the rest products which were soluble in petroleum ether. The bromine content of the petroleum ether-soluble material with the Parr peroxide bomb method of Lemp and Broderson [10] was 22.1 per cent. The theoretical value for dibromstearic acid is 36.18 per cent, indicating that but 61 per cent of the material is dibromstearic acid, and that saturated products are present.

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9. Twitchell, E.: The Melting and Solidifying Points of Mixtures of Fatty Acids and the Use of These Points to Determine the Composition of Such Mixtures, J. Indust. & Engin. Chem. **6**:564, 1914.

10. Lemp, J. F., and Broderson, H. J.: A Method for the Determination of Halogens in Organic Compounds, J. Am. Chem. Soc. **39**:2069, 1917.

The combined fatty acids of the lipids of the surface of the skin were made up of 41.5 per cent liquid and 58.5 per cent solid acids as determined by the lead soap method. The following values for the solid acids are shown in table 3.

The liquid acids had an iodine number of 74.6, formed ether-insoluble bromides equivalent to 0.01 per cent, and petroleum ether-insoluble bromides equivalent to 0.09 per cent of the liquid acids. The petroleum ether-soluble fraction contained 31.8 per cent bromine, or 88 per cent of the fraction was made up of dibromstearic acid.

The lower fatty acids which arise from the lipids of the skin and are responsible for some of the body odors were not separated; conse-

TABLE 3.—*Values for Solid Acids*

	Iodine Number	Melting Point, C.	Neutral Equivalent	Palmitic Acid, per Cent	Myristic and Stearic Acids
1	21.8	54.7	241	27	0
2	....	54.7	295	38	0
3	....	47.6	263	38	0

TABLE 4.—*Composition of Saponifiable Products*

Fatty Acids	From Lipids of the Stratum Corneum, per Cent	From Superficial Lipids of the Skin	
		Free Acids, per Cent	Combined Acids, per Cent
Liquid acids	44.6-38.8	41.7	41.5
Solid acids	55.4-61.2	58.3	58.5
Oleic acid	48.4	46.0	50.7
Linoleic acid	0.44	2.24	0.04
Arachidonic acid	0.13	0	0.004
Palmitic acid	19.2	20.4	22.2
Liquid saturated acids	5.6	16.2	5.0

quently, those more soluble in ether than in water and those not volatilized when samples were dried in vacuo were included in this study. The neutral equivalents of the acids, however, do not indicate that lower fatty acids are present to any great extent.

Although none of the saponifiable products was isolated and positively identified, the data which we have compiled in table 4 show their composition.

More information concerning the nature of the fatty acids might have been obtained by converting them into their methyl or ethyl esters and fractionally distilling them under high vacuum. The amount of material was so small that this procedure was impracticable.

COMMENT

Unsaponifiable Substances.—The most striking thing about the lipids of the skin is their high content of unsaponifiable material. This

fraction makes up from 27 to 36 per cent of the total lipids. The only substances occurring in this fraction for which we have a specific method of determination are the sterols. These constitute approximately two thirds of the unsaponifiable fraction of the lipids of the stratum corneum and less than half of the unsaponifiable superficial lipids of the skin. Concerning the other unsaponifiable material, we know nothing. The unsaponifiable fraction of the lipids of the stratum corneum was solid and crystalline, while that of the lipids from the surface of the skin was noncrystalline and oily.

The high sterol and sterol ester content of the lipids of the skin is extremely interesting. We know little concerning the function and metabolism of these compounds, except perhaps ergosterol, provitamin D. Recent work suggests that the secretion of lipids of high sterol content is characteristic of all epithelial tissue. Sperry and Angevine [11] found that the intestinal mucosa secretes relatively large quantities of sterol-containing lipids. Schönheimer and Hrdina [12] studied the sterols secreted by the colon and found large amounts of saturated sterol. They also found considerable saturated sterol in the unsaponifiable lipids of pilonidal dermoid cysts. Bürger and Oeter [13] analyzed the mucosa of the large bowel and concluded that the sterol content was not sufficient to support the view that the high sterol content of feces is due to desquamated mucosa, but that a secretion of sterols by the intestine was indicated.

While it may be that the excretion of sterols is a mechanism of the body for getting rid of a waste product of metabolism, it is also possible that the constant secretion of sterols on the surfaces of the body is necessary to preserve their normal physical, chemical and immunologic status. Again, these secretions, particularly those of the skin, may play an important rôle in the general metabolism of the body. The experiments of Leopold, Bernhard and Tow [14] lend support to this view. These workers found that irradiation alone would cause a rise in the lipids of the blood of two of eight normal persons, but that applying anhydrous wool fat before irradiation with ultraviolet light caused a rise in the lipids of the blood and particularly the blood cholesterol in 86

11. Sperry, W. M., and Angevine, R. W.: Lipid Excretion: IX. The Secretion of Lipids into the Intestine, J. Biol. Chem. **96**:769, 1932.

12. Schönheimer, R., and Hrdina, L.: Ueber Exkretion und Rückresorption im Dünndarm, mit besonderer Berücksichtigung der Sterine, Ztschr. f. physiol. Chem. **212**:161, 1932.

13. Bürger, M., and Oeter, H. D.: Ueber den Cholesteringehalt der menschlichen Dickdarmschleimhaut, Ztschr. f. physiol. Chem. **184**:257, 1929.

14. Leopold, J. S.; Bernhard, A. B., and Tow, A.: Changes of the Blood Lipids in Children Following the Application of Anyhydrous Wool Fat and Ultraviolet Irradiation, Am. J. Dis. Child. **43**:882 (April) 1932.

per cent of the cases. Application of wool fat alone, unless irradiated, had no noticeable effect.

Saponifiable Substances.—The fatty material of the epidermal cells reaches the surface of the skin after having gone through the complex chemical changes involved in the process of keratinization. On the surface of the skin the lipids are exposed to bacterial action and oxidation by the atmosphere. These factors modify the lipids and make the problem of analysis a complex one indeed. The composition of the lipids of the surface of the skin is also complicated by the fact that they arise from sources which are variable. The secretion of sweat, of course, is quite variable and the sebaceous secretion increases at the time of puberty and diminishes with age. We do not know whether quantitative or qualitative changes in these secretions are produced by such factors as diet, irradiation or the general health of the person.

The high content of free fatty acids in the lipids of the skin is interesting. Most body tissues contain but a relatively small amount of uncombined fatty acid. The free fatty acids of the lipids of the skin no doubt are the result of lipolytic action of enzymes and bacteria of the skin, and the splitting of higher unsaturated fatty acids by oxidation. These free fatty acids, and particularly the lower fatty acids, undoubtedly have an important effect on the p_H or acidity of the skin, which in turn may be related to the germicidal or immunologic properties of the skin.

POROKERATOSIS (MIBELLI)

A REPORT OF ITS OCCURRENCE IN A NEGRO

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About ninety cases of Mibelli's disease have been reported; but a careful search revealed no detailed description of the condition in members of the Negro race. Hutchins,[1] the first American author to describe a case, stated that he had seen lesions resembling porokeratosis on the scrotum of a young Negro boy, but had no opportunity to study the case. Tauber [2] in discussing the case which is reported here mentioned that he had seen a case in a Negro. With these exceptions, no reference to cases of the disease having been observed in the Negro could be found.

REPORT OF A CASE

A Negro laborer, aged 35, born in Arkansas, was admitted to Lakeside Hospital on Aug. 8, 1931, with a severe dermatitis of occupational origin (cement) in the axillae and on the forearms, face and back. Routine examination revealed, in addition, numerous unusual keratotic lesions scattered over the body.

The patient stated that when he was 9 years old, a small wartlike elevation was noted on the right thigh. This lesion grew to the size of a twenty-five cent piece during the next two years, and since then had remained stationary. At intervals of from two to five years, new symptomless lesions appeared, involving the scrotum, the shoulders, the scalp and the hands in succession. The most recent lesions were of about two years' duration.

His general health had been excellent. He had gonorrhea and a penile ulcer in 1913. In 1928, he received antisyphilitic therapy consisting of eighteen intravenous injections.

There was no history of similar cutaneous lesions occurring in the patient's parents, wife or three children. He stated that there had been no intermarriage of his ancestors with the white race.

From the Department of Dermatology and Syphilology, Lakeside Hospital, service of Dr. H. N. Cole, and from the Institute of Pathology of the School of Medicine, Western Reserve University, Cleveland.

1. Hutchins, M. B.: A Case of Porokeratosis (Mibelli), J. Cutan. Dis. **14**: 373, 1896.

2. Tauber, E. B., in discussion on Ambler, J. V.: Porokeratosis (Mibelli), Arch. Dermat. & Syph. **25**:1158 (June) 1932.

Physical Examination.—The patient was a very muscular young Negro. The general examination gave normal results, except for a soft systolic murmur heard over the aortic region. The urine contained many pus cells; otherwise it was normal. The Wassermann and the Kline tests of the blood were both 4 plus. Examination of the spinal fluid gave negative results. The red cell count was 4,500,000; the white cell count, 9,100. The differential count showed: lymphocytes, 27 per cent; polymorphonuclear leukocytes, 72 per cent, and eosinophils, 1 per cent. The average basal metabolic rate was minus 14.

There was a severe dermatitis of the shoulders, arms and face due to the carrying of cement bags. In addition, examination of the skin showed numerous keratotic lesions of two distinct types. On the hands and fingers were lesions consisting of an elevated, wavy, keratotic border and a depressed, smooth and slightly atrophic center. At the summit of the peripheral wall was a horny line

Fig. 1.—Typical lesion of porokeratosis showing the eccentric keratotic border and atrophic center.

which encircled the lesion. In a few lesions this line was continuous; in others it was interrupted by seedlike horny plugs. It could be demonstrated by means of a sharp instrument that the horny line was set into a sulcus at the summit of the peripheral wall. The largest lesion, that on the dorsum of the left hand, was about 4 cm. in diameter (fig. 1). The area within the keratotic ridge was normal in appearance except for slight atrophy. On the dorsum of the right thumb was a circular lesion, 1.1 cm. in diameter, which differed somewhat from the others. The peripheral wall was lacking; instead, the horny line which formed the border was flush with the surrounding normal skin. The area within this circle was studded with evenly distributed, punctate, pinhead-sized depressions. The second type of lesions showed no peripheral wall or horny dike. They consisted of deeply pigmented, piled-up, keratotic elevations, varying in diameter from 2 mm. to 3 cm. These verrucous-like lesions were situated on the arms, shoulders, scalp, scrotum and right thigh, being most numerous on the scrotum and scalp. There were no typical ringed lesions except on the hands.

Course and Therapy.—The patient was seen in the clinic at weekly intervals for thirteen months, during which time he received antisyphilitic therapy.

During the first ten months no attempt was made to treat the lesions. Those which had been completely excised for histologic studies did not recur, nor did any new lesions appear. On May 27, 1932, an attempt was made to remove the lesions on the hands and arms. Several methods were used, namely, excision, complete destruction with endothermy, partial destruction with endothermy and application of carbon dioxide snow. The lesions removed by complete excision or by total destruction with endothermy showed no recurrence, but those treated

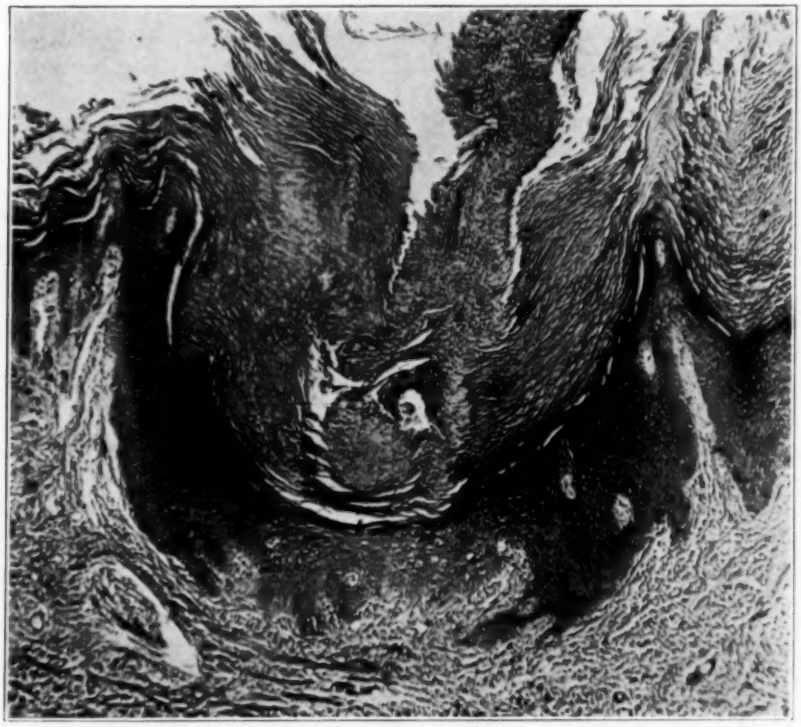

Fig. 2.—Microscopic appearance of the horny projection at the summit of the peripheral wall. Low power magnification.

superficially not only recurred but were stimulated to increase in size. As the large lesion on the dorsum of the left hand presented apparently normal skin within the peripheral ridge, an attempt was made to destroy only the ridge. Within two months the lesion had assumed its original characteristics and had increased in size.

Because of the patient's low basal metabolic rate, the treatment advocated by Acton [3] was tried. The patient was sent to the hospital where he remained in bed and received thyroid therapy for three weeks. Medication was started with 2 grains (0.130 Gm.) of thyroid extract twice a day; this was rapidly increased

3. Acton, H. W.: Porokeratosis: Its Causation and Treatment, Indian J. M. Research **15**:349 (Oct.) 1927.

to 5 grains (0.324 Gm.) twice a day. After two weeks of thyroid therapy the basal metabolic rate was minus 4; before thyroid therapy it had been minus 14. No change was noted in the cutaneous lesions during therapy, nor was there any change one month after the patient was discharged from the hospital.

Histopathology.—Biopsy specimens were removed from four different sites; two included only the peripheral wall of the larger lesions; the others included the whole of two smaller verrucous-like lesions. The material was fixed in formaldehyde and embedded in paraffin. Serial sections were cut and stained with hematoxylin and eosin.

The sections all showed the same general features. In those taken from the verrucous-like lesions, the horny layer was thickened, averaging one and one-half times the thickness of the remainder of the epidermis. The surfaces at intervals showed projecting plugs of parakeratotic cells. The sections cut from the borders of the ringed lesions differed from the aforementioned sections in that the horny layer was thicker, and instead of numerous small projecting plugs of parakeratotic cells there was one large projection (fig. 2) which represented the horny material demonstrated clinically at the summit of the peripheral wall. At the base of such plugs there was usually a dip of the epidermal layer. The line of junction of the granular and horny layers was very irregular, showing sharp peaks in some instances. The stratum lucidum was not recognized in any of the sections. The horny material between the columns or cones of parakeratotic cells was compact and deeply stained with eosin. The horn-filled depressions in the epidermis could not be definitely identified as hair follicles or as openings of sweat ducts. No sebaceous glands were seen. The granular layer varied from three to eight layers of cells, and where the parakeratotic columns arose from just above the basal row cells there was an interruption of the granular layer, although on either side of such a parakeratotic plug there was usually thickening of the granular layer.

The malpighian layer exhibited moderate hyperplasia with elongation of the rete cones, the latter being broadened in some cases and narrowed in others. The protoplasmic bridges were more prominent than usual. In some portions an empty space could be seen about some of the nuclei. In certain rete cones the evolution of the cells in the lower layers of the malpighian layer showed a striking change: The rete cells were transformed into cells having acidophilic cytoplasm and nuclei which became smaller and darker progressively as they were pushed upward. Cells beginning to show this change were intermingled with normally appearing rete cells in the lower epidermis. This formation of columns of parakeratotic cells was the most striking feature of the sections.

The basal row was intact and not unusual in appearance. The papillae were frequently elongated, sometimes reaching nearly to the granular layer. They were narrow in some instances and broad in others. The vascular channels in the papillary layer were dilated, and the cellular infiltrate in this layer tended to be most abundant around the vessels. The cellular infiltrate consisted largely of nuclei of young connective tissue cells, although many lymphoid and endothelial cells were observed. Chromophores bearing brown pigment were fairly abundant in some portions.

The reticular layer showed little or no infiltration. Groups of sweat glands were seen in this portion. No change was recognized in those included in the sections except perhaps slight dilatation in a few. In several instances sweat ducts could be traced leading to regions just below a parakeratotic plug, but actual connection could not be demonstrated.

COMMENT

Mibelli,[4] Respighi,[5] Wright,[6] Andrews[7] and others state that the lesions of porokeratosis begin as warty, dry, cone-shaped elevations, less than 1 cm. in diameter, which spread peripherally, leaving a depressed, somewhat atrophic center, with central involution characterizing the late stages of the disease. In our case, the oldest lesions did not show the eccentric ring with the involuting center, while the more recent lesions, those on the hands, showed the typical picture described. As a considerable number of cases reported in the literature had the typical ringed lesions limited to the hands and feet, these findings would lead one to believe that the tendency to eccentric growth is more likely to occur in these locations. Hall[8] drew attention to the many varieties of lesions in different cases and pointed to evidence which tended to show that types often show familial characteristics. This tendency to more rapid central involution of the lesions on the hands and feet may be an individual characteristic but the occurrence is striking and worthy of comment. Possibly trauma in these locations influences the more rapid change of the lesions so situated.

The microscopic picture of porokeratosis is fairly characteristic; however, its difference from other keratoses showing parakeratotic plugs is not sufficiently great to warrant a definite histologic diagnosis. It is now generally agreed that the involvement of the sweat ducts is not primary or unique. The most striking feature in our sections is the occurrence of conelike extensions or plumes of parakeratotic cells which extend from the lower epidermis to project above the surface. Many authors have mentioned this parakeratotic change, but Ritchie and Becker[9] were the first to emphasize it.

There have been many theories concerning the etiology of porokeratosis, but none of the arguments are convincing. That there is a hereditary tendency has been well illustrated by many writers, notably

4. Mibelli, V.: Contributo allo studio della ipercheratosi dei canali sudoriferi: Porokeratosis, Gior. ital. d. mal. ven. **28**:313, 1893.

5. Respighi, E.: Di mia ipercheratosi non ancora descritta, Gior. ital. d. mal. ven. **28**:356, 1893; Ueber eine noch beschreibene Hyperkeratose, Monatschr. f. prakt. Dermat. **18**:70, 1894.

6. Wright, C. S.: Porokeratosis: Report of a Case, Arch. Dermat. & Syph. **4**:469 (Oct.) 1921.

7. Andrews, G. C.: Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1930.

8. Hall, G. A. M.: Porokeratosis (Mibelli): A Report of Its Occurrence in Six Chinese Patients, Arch. Dermat. & Syph. **18**:396 (Sept.) 1928.

9. Ritchie, E. B., and Becker, S. W.: Porokeratosis (Mibelli): Report of a Case, Histologic Study and Animal Inoculation, Arch. Dermat. & Syph. **26**:1032 (Dec.) 1932.

Gilchrist [10] who reported eleven cases in one family, and Pasini [11] who saw twenty-six cases in one family. Mibelli came to the conclusion that the condition belonged to the class of nevi; several of the more recent writers including Hall [8] are of the same opinion. Ichteiman,[12] in a recent publication, reported a case which showed systematized distribution; nevertheless, he came to the conclusion that it could not be considered nevoid in character, and he preferred to believe that the disease belongs to the group of dyskeratosis of Darier. Acton,[3] in 1927, reported a series of eight cases, and although he believed the condition to be a distinct clinical entity, he thought it merely a form of hyperkeratosis with central atrophy (morphea). He considered it as one of the large group of atrophies, including xeroderma, scleroderma and morphea, all of which he believes are partially associated with hypofunction of the thyroid gland. He reported complete cures by thyroid therapy in three of his patients. Although our case did show a slightly subnormal basal metabolic rate, duplication of Acton's method failed to influence the lesions.

Numerous unsuccessful attempts have been made to inoculate human beings and animals. The most recent of these attempts was performed by Ritchie and Becker,[9] who in one instance obtained similar microscopic changes in the skin of a guinea-pig following the injection of macerated material obtained from a patient with porokeratosis.

The lesions of porokeratosis apparently remain indefinitely unless completely excised or destroyed. Roentgen and radium therapy has been tried without benefit. No report of other attempts to use Acton's method of thyroid medication was noted in the literature.

SUMMARY

A case of porokeratosis (Mibelli) is recorded, this being the first detailed report of a case occurring in the Negro race. A brief histologic study of the case is presented, emphasizing the striking appearance of parakeratotic plugs and the lack of evidence of primary involvement of the sweat ducts. Attention is drawn to the tendency of many cases of porokeratosis to show more rapid central involution of the lesions on the hands and feet than on other parts of the body.

10. Gilchrist, A. D.: Eleven Cases of Porokeratosis (Mibelli) in One Family, J. Cutan. Dis. **17**:149, 1899.

11. Pasini: Demonstration VII, Internat. Dermat. Cong., Rome, Dermat. Wchnschr. **55**:1733, 1912.

12. Ichteiman, M. S.: Clinical and Histological Study of Porokeratosis, Mibelli, Sovet. vestnik venerol. i dermat. **9**:674 (Nov.-Dec.) 1931; abstr., Arch. Dermat. & Syph. **26**:517 (Sept.) 1932.

MULTIPLE GANGLIONEUROMAS OF THE SKIN

REPORT OF A CASE WITH DIFFERENTIAL DIAGNOSIS FROM RETICULOHISTIOCYTIC GRANULOMA, NEUROMA, XANTHOMA AND RECKLINGHAUSEN'S DISEASE OF THE SKIN

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We shall report a case in which there were multiple nodules of the skin. The case, clinically, suggested the diagnosis of multiple xanthoma, but we feel that it was one of multiple ganglioneuromas of the skin in which the nodules had their origin in the tissue of the peripheral sympathetic nervous system and probably are best explained as malformation (*Missbildung*). The diagnosis at which we finally arrived was first suggested by Dr. James W. Kernohan, of the Mayo Clinic, who gave us assistance regarding the pathologic problems that were encountered. Because most of the dermatologists who saw the patient felt that the clinical diagnosis of multiple xanthoma was warranted (at one time the yellowish hue was less apparent and suggested the diagnosis of sarcoid), and because the histopathologic findings were inconsistent with the diagnosis of xanthoma, we submitted sections for study to various pathologists, neuropathologists and dermatopathologists. Their replies indicated divergence of opinion as to the histopathologic diagnosis between multiple ganglioneuroma of the skin and reticulohistiocytic granuloma (reticulo-endotheliosis) of the skin. With the latter diagnosis, the possibility of the presence of xanthomatous changes not demonstrable with the ordinary stains was included.

REPORT OF CASE

A Jewish man, aged 26, came to the Mayo Clinic in April, 1930, because seven months before pus had been found in the urine on three separate occasions. Urinalysis at the clinic revealed 22 pus cells to the field and a trace of albumin. The results of general examination were otherwise unimportant. A diagnosis was made of nonspecific urethritis and verumontanitis.

The patient returned to the clinic in August, stating that for some time he had had attacks, every three or four weeks, of flatulence and bloating, occurring mostly after eating and lasting for from two to five hours. He still had a

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From the Section on Dermatology and Syphilology, the Mayo Clinic.

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constant but slight urethral discharge, with occasional frequency and burning on urination. Roentgenologic examination of the colon revealed proximal failure of rotation; the cecum was in the median line and low in the pelvis, but general examination otherwise gave essentially negative results. Examination included analysis of the gastric content and studies of the blood, including estimations of the coagulation time and bleeding time. At operation, incomplete rotation of the colon was found. The appendix and cecum were just to the right of the median line, in the position of the transverse colon. There was a veil running apparently from the beginning of the jejunum for a considerable distance, and this may have been an obstructing element; it was freed, ligated and turned back. The appendix was slightly inflamed and was removed. Exploration of the gallbladder revealed nothing of significance. A pathologic report was made of chronic catarrhal appendicitis with chronic periappendicitis. Convalescence was uneventful.

The patient returned a third time in August, 1931, complaining of the same mild gastro-intestinal disturbances. He had gained 25 pounds (11.3 Kg.). The roentgenogram of the thorax gave evidence of thickening in the hilar regions of the lungs and probably of enlarged lymph nodes, but nothing else of note was found. The patient was of a nervous and introspective type. As at the previous examinations, no cutaneous lesions were noted.

The patient was seen again in February, 1932, because of the development, in September, 1931, of the cutaneous lesions which he first had noticed on the buttocks, and which spread to the pubes, abdomen, axilla, back and neck. At this time the lesions were numerous and prominent on the trunk and in the axillae, but there were also a few scattered lesions on the extremities, palms, neck, eyebrows, eyelids and shaft of the penis and around the anus. There was none on the mucous membranes. The eruption consisted of discrete, round, firm, yellowish papules or nodules varying from 1 mm. to 1 cm. in diameter and raised above the level of the skin. A few showed signs of involution. There was practically no scaling. No pustules or scars were seen. Pressure with the diascope accentuated the yellowish hue. The only subjective symptom was slight pain on pressure, like that of a pinprick.

The clinical differential diagnosis of multiple xanthoma of the diabetic or juvenile type seemed most probable, although leukemia cutis and sarcoid were also considered. General examination again gave essentially negative results except for the findings previously cited and a roentgenologic finding of partial rotation of the duodenum and the colon. The percentages of the different types of leukocytes in the blood were as follows: lymphocytes, 26; monocytes, 5.5; neutrophils, 57; eosinophils, 7; basophils, 0.5; questionably immature cells, 4, and reticulated cells, 0.5. The impression of the hemocytologists who studied the blood smears was that the picture was not one of true leukemia but, possibly one of an early stage of leukemia; blood smears subsequently studied, together with a review of the original smears, failed to support the diagnosis of leukemia or of reticulo-endotheliosis. Chemical studies of the whole blood, reported in milligrams for each 100 cc., gave the following results: urea, 20 (normal, from 20 to 40); uric acid, 4 (normal, from 1 to 4), and sugar, 88 (normal from 90 to 120). Previous studies made at the clinic and elsewhere had revealed that the values for blood sugar and sugar tolerance were within normal limits. Further chemical studies of the blood gave the following results, reported in milligrams for each 100 cc. of plasma (the normal values are in parentheses): cholesterol, 250 (from 165 to 200); cholesterol esters, 189 (from 110 to 145); lecithin, 279

(from 200 to 250) ; total fatty acids, 286 (from 335 to 350) ; total lipoids, 486 (from 500 to 550). It appears, therefore, that the values of cholesterol, cholesterol esters and lecithin were increased, whereas thereafter total fatty acids and total lipoids were less than normal.

Histopathologic study of a lesion removed from the anterior part of the right axilla failed to substantiate our impressions that the condition was xanthoma, leukemia or tuberculosis. Because we were unfamiliar with the histopathologic picture, sections were submitted to Dr. Kernohan, who, after staining sections with thionine, made a diagnosis of ganglioneuroma of the skin.

The patient returned in May, with almost twice the number of lesions he had before. The clinical appearance and the results of physical examination and of laboratory examinations, especially differential leukocyte counts, did not differ essentially from those found on the patient's visit in February. More of the lesions, however, revealed definite signs of involution. During the interval, the man had consulted numerous eminent dermatologists, all of whom had suggested a clinical diagnosis of xanthoma. One dermatologist had given the patient a course of treatments with insulin, without effect. Another biopsy of an early nodule taken from the trunk, near the axilla, confirmed our diagnosis of ganglioneuroma of the skin.

Because of the pathologic evidence and the inability to demonstrate xanthoma, the patient was questioned again, in detail, regarding his history and his family history, but significant data were not obtained regarding xanthoma, tuberculosis, neuroma, Recklinghausen's disease or tumor of the brain.

The patient returned in June, for a course of paravertebral roentgen treatments, but in August he reported that he had received no benefit from them.

Dr. R. H. Jaffé, who in December, 1931, had studied specimens for biopsy removed from a different part of the body, made a diagnosis of reticulohistiocytic granuloma with possible xanthomatous changes. Sections of our first two specimens taken for biopsy were also submitted to Dr. N. C. Foot and Dr. Paul Klemperer, who concurred essentially with Dr. Jaffé's report of reticulohistiocytic granuloma (reticulo-endotheliosis of the skin). Dr. J. H. Globus and Dr. Fred Weidman supported the diagnosis of ganglioneuroma. The basis for these divergent views will be considered later.

A review of the histopathologic characteristics of the appendix, which had been removed in August, 1930, disclosed an increase over the normal in the number of ganglion cells but no formation of definite tumor.

The patient was presented at the meeting of the Chicago Dermatological Society, in October, 1932, at which time the diagnosis of multiple sarcoids was suggested. The majority of the members, however, concurred in the diagnosis of ganglioneuroma and agreed they had never seen a similar case.

The patient finally returned to the clinic in February, 1933 (figs. 1 and 2). The lesions on the abdomen had decreased in number, but those on the extremities had increased. The distribution of the lesions and the symptoms otherwise remained essentially as before. At this visit the yellow hue of the nodules strongly suggested the possibility of xanthoma. The color was prominent clinically and grossly on section when the specimen was split for biopsy. The patient stated that he was able to cause more rapid involution of some of the lesions by treatment with the carbon arc light. Many of the lesions had undergone involution spontaneously, without residual atrophy or scarring. Specimens for biopsy were again taken, and several lesions, including one on the thigh which had undergone involution until it was almost at the level of the skin and which presented a more reddish-

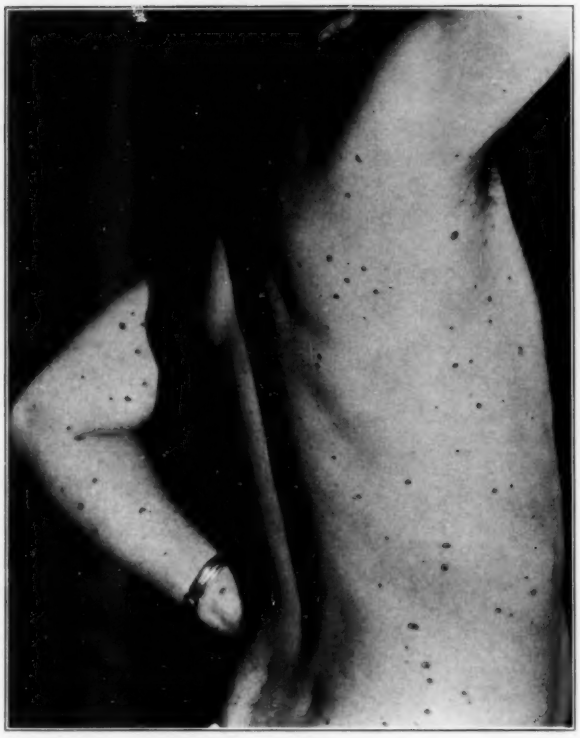

Fig. 1.—General distribution of the lesions.

Fig. 2.—Variation in the size of the individual lesions and of other lesions that are in the process of flattening and undergoing involution.

brown hue, were excised. The patient had not lost weight but continued to have gastro-intestinal discomfort. The specimens for biopsy removed at this visit presented a histopathologic picture similar to that previously noted, yet permitted orientation between early and involuting lesions. Roentgenograms of the skull, for evidence of changes in the cerebellopontile angle, were not obtained.

Histopathologic Studies.—Separate specimens for histopathologic studies were taken in February and May, 1932, and three different nodules were taken for study in February, 1933. They will not be described in their chronologic order but rather from the standpoint of early, fully developed and late lesions (figs. 3, 4, 5, 6 and 7).

Reversing the usual procedure in describing the histopathologic features, we shall first give some of the negative findings which were common to the lesions of all stages. Frozen sections stained with sudan III, nile blue sulphate and, in two instances, with Lorraine-Smith-Dietrich stain failed to disclose evidence of fat, fatty acids, cholesterol crystals or other lipids in any of the pathologic cells of the tumors. Doubly refractile crystals could not be demonstrated in unstained frozen sections studied under the polariscope with the Nicol prism. Normal deposits of fat were seen in the subcutaneous tissues and the sebaceous glands. A few of the endothelial cells of some of the vessels contained small amounts of lipids, but none was present in the ganglion cells. Studies for amyloid, made with different stains, also gave negative results. In all of the specimens taken for biopsy, the elastic tissue, as stained with acid orcein or elastin H, was destroyed wherever the tumor or the infiltrate was at all marked. In some sections there was a perineural lymphocytic infiltrate either at the periphery of the nodule or near the subcutaneous tissue, but there were no appreciable alteration of the nerve bundles nor any demonstrable connection between the nerve bundles normally present and the ganglion cells in the tumor, nor were pacinian or tactile corpuscle demonstrable. In many sections the arrectores pilorum bundles were swollen or possibly hypertrophied, even when the hair follicles were atrophied or absent. Although the smooth muscle bundles (arrectores pilorum) at first sight resembled swollen bundles of nerves, they were readily distinguished by special stains.

The earliest histopathologic changes were seen on biopsy of a small, newly developed nodule excised from the trunk in May, 1932, near the axilla (fig. 4) and of another similar lesion excised from the arm (fig. 5*A*) in February, 1933. The epidermis was compressed, and the rete ridges were flattened as the result of the dense infiltrate which was limited to the upper and middle parts of the cutis. The infiltrate was composed of a multiplicity of cell types, with ganglion cells predominating. Many dilated capillaries with extravasation of erythrocytes were seen at the earlier biopsy (fig. 4*D*), whereas at the later biopsy fewer erythrocytes were seen in the tissue spaces, and early signs of thickening of the walls of the vessels were noted. In addition to the ganglion cells, the infiltrate was composed of many eosinophils and a varying number of lymphocytes, plasma cells, mast cells, polymorphonuclear leukocytes, connective tissue cells and histiocytes. The ganglion cells were most numerous in the upper part of the cutis and especially just beneath the epidermis; they were less prominent in the deeper portions of the cutis, where they had undergone vacuolar and other degenerative changes. In the deeper portions of the cutis and at the periphery of the lesions, cells resembling lymphocytes predominated. Each ganglion cell was characterized by its large size, frequently, by its multiple dendritic processes and by its prominent vesicular nucleus with a large, dense-staining nucleolus (fig. 6). Several ganglion cells had two nuclei (fig. 7*B*), and occasionally two nucleoli were seen (fig. 4*E*). Thionine stain

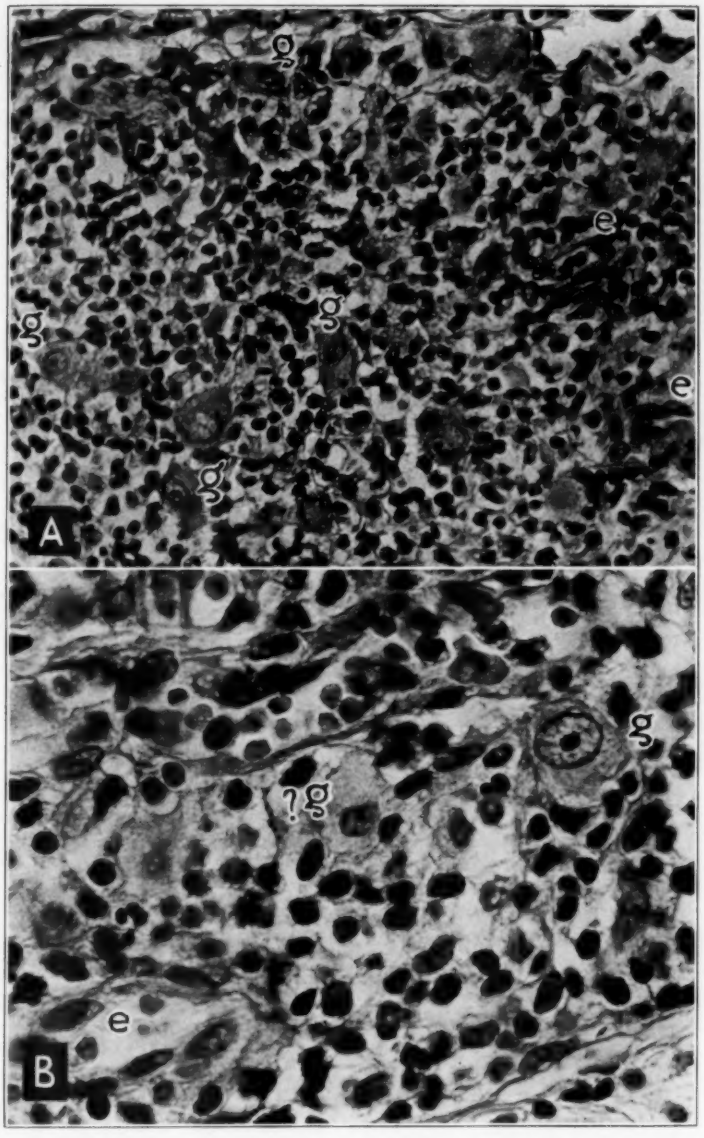

Fig. 3.—Biopsy (February, 1932), showing early stage of involution. The ganglion cells are indicated by *g;* the endothelial cells by *e*. The transitions between these lesions are apparent. Note the multiplicity of cell types. *A*, section stained by van Gieson stain (× 365); *B*, by hematoxylin and eosin (× 700).

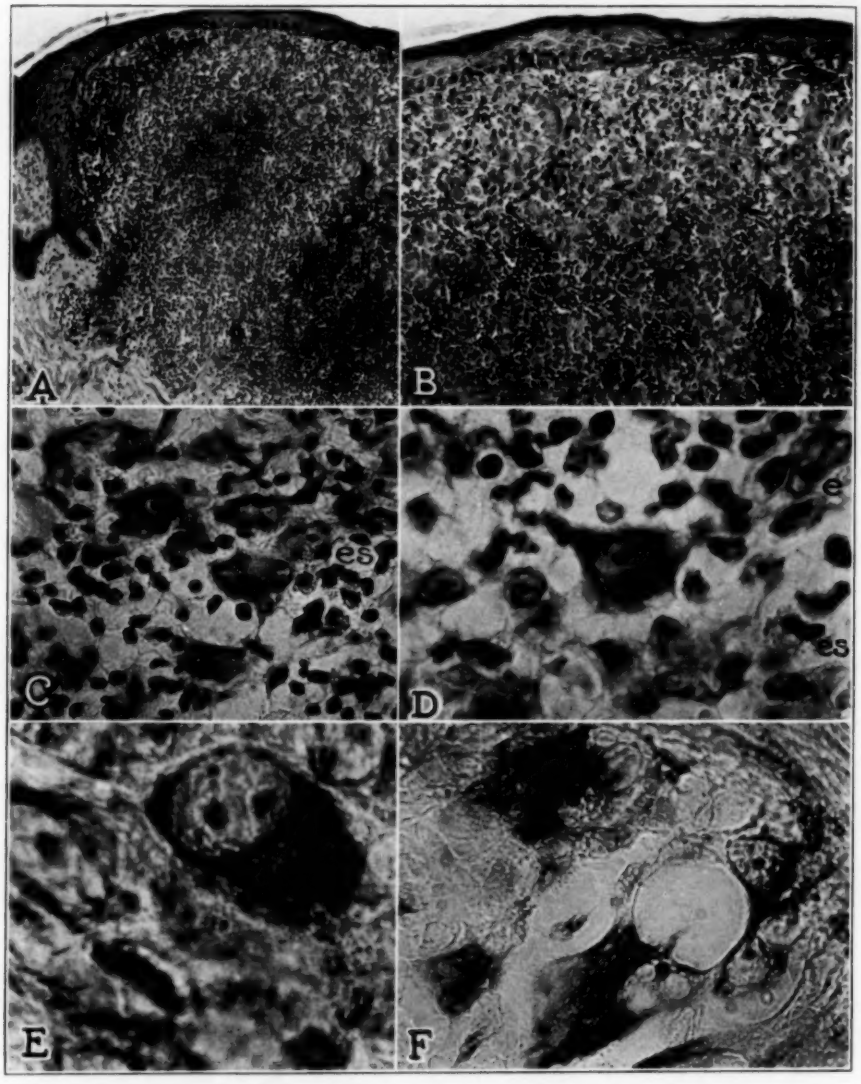

Fig. 4.—Early nodule from the axilla (May, 1932). In *A* and *B* most of the large, palely staining cells are ganglion cells; hematoxylin and eosin (× 65 and 125). *C*, ganglion cells with double nuclei and many eosinophils with coarse, light cytoplasm; thionine stain (× 450). *D*, a typical ganglion cell showing a large nucleolus and dendritic process, to be compared with the endothelial cell at *e*. An eosinophil in the lower corner is indicated by *es*. Extravasation of erythrocytes is also to be seen. Thionine (× 850). *E*, Nissl granules in the ganglion cell; thionine (× 1425). *F*, vacuolated ganglion cells in the appendix; thionine (× 700).

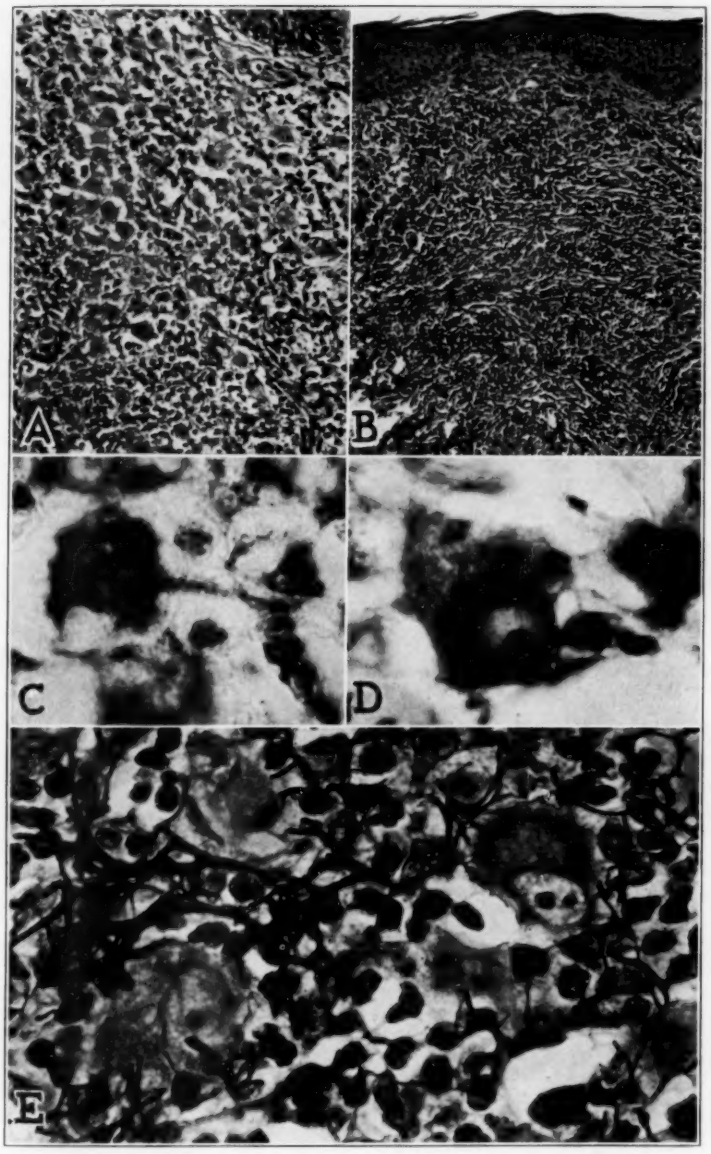

Fig. 5.—*A*, an early lesion from the arm (February, 1933), showing multiple ganglion cells; hematoxylin and eosin (× 135). *B*, lesion of the thigh undergoing involution; a few degenerating ganglion cells can be seen in the upper left corner; otherwise the condition is essentially fibrosis; hematoxylin and eosin (× 80). *C*, ganglion cell with argentophilic cytoplasm and definite dendritic process; Orlandi stain (× 900). *D*, typical ganglion cell with Nissl granules and a prominent nucleolus; thionine (× 900). *E*, ganglion cells surrounded by a network of *Gitterfäsern* and a ring of lymphocytic cells suggesting capsular cells; Maresch-Bielschowsky stain (× 775).

Fig. 6.—Group of ganglion cells with Nissl granules. The cell at *a* has a definite dendritic process. The size of the cells is to be compared with the size of the lymphocytes, leukocytes and endothelial cells present. Thionine; × 1,350.

revealed many fine Nissl granules in the cytoplasm of the ganglion cells. The eosinophils and mast cells were readily distinguished from the ganglion cells by their smaller size, less prominent nucleoli and larger and coarser granules in the cytoplasm, which also stained differently. Van Gieson stain revealed apparent transitions between endothelial cells and cells of the vessel walls, histiocytes and ganglion cells. That the reticulo-endothelial system of the skin was also involved was apparent in sections stained with the Maresch modification of the Bielschowsky stain,[1] which revealed numerous *Gitterfäsern* (lattice fibers), especially about the capillaries and blood vessels but also surrounding the ganglion cells (fig. 5 *E*). Fine, argentophilic fibers were occasionally seen penetrating and apparently a part of the ganglion cell. In figure 5 *E* the cells of lymphocytic characteristics

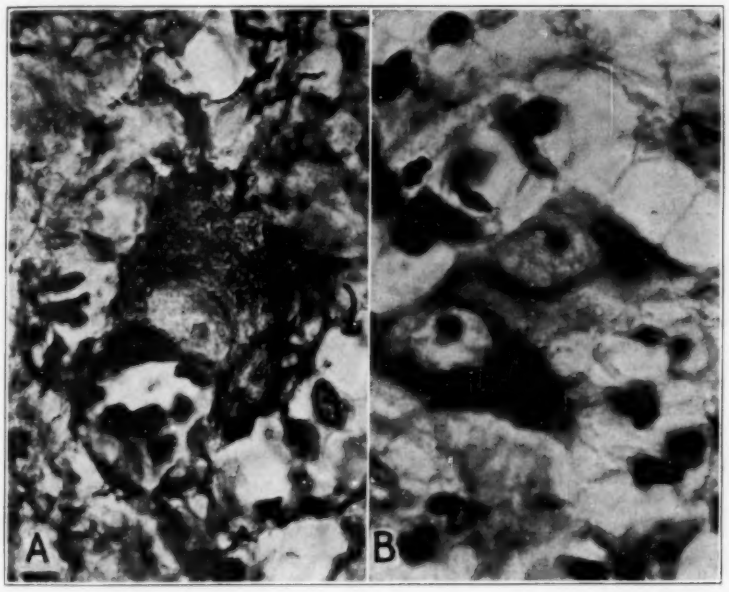

Fig. 7.—*A*, a large ganglion cell containing argentophilic granules in the cytoplasm, surrounded by, and apparently forming part of, the wall of the tortuous capillary which extends around the left, lower and right sides of the cell. Maresch-Bielschowsky stain; × 900. *B*, a large ganglion cell containing two nuclei and multiple branching process with a great many Nissl granules staining black in the lower portion. Thionine; × 1,000.

surrounding the ganglion cells can be interpreted as either lymphocytes or capsular cells (primitive neurocytes or sympathogonias). Orlandi stain and Bielschowsky stain of frozen sections revealed numerous fine argentophilic granules in the ganglion cells but not in the histiocytes or endothelial cells. The nuclear rims and nucleoli of the ganglion cells were markedly argentophilic. Multiple dendritic

1. (*a*) Dörffel, Julius: Histogenesis of Multiple Idiopathic Hemorrhagic Sarcoma of Kaposi, Arch. Dermat. & Syph. **26**:608 (Oct.) 1932. (*b*) Way, S. C.: Lattice Fibers: Their Diagnostic Value in Epithelioma, ibid. **16**:25 (July) 1927.

processes to the ganglion cells were best seen in sections stained by Orlandi's method; a process from one cell suggested a nonmedullated axon (fig. 5 *C*). No medullated nerve fibers were demonstrable. It was impossible with silver stains to distinguish definitely between *Gitterfäsern* and nonmedullated nerve fibers; the impression was that there were very few of the latter. In several areas, with Orlandi and Maresch-Bielschowsky stains, a ganglion cell seemed to form a part of the wall of a capillary (fig. 7 *A*). Stains for hemosiderin gave negative results when applied to sections from the axilla. The specimen for biopsy removed from the arm revealed a few chromatophores and histiocytes just beneath the epidermis, laden with hemosiderin. Also, there was an occasional degenerating ganglion cell deep in the cutis, the cytoplasm of which assumed a bluish hue. Silver nitrate stain for melanin disclosed a few dendritic cells in the epidermis and an occasional chromatophore with pigment in the upper layers of the cutis. None of the ganglion cells contained melanin.

The specimen first removed for biopsy (February, 1932), from the anterior part of the axilla, and a second specimen fixed in alcohol, taken from the arm (February, 1933), revealed histologically, we believe, early signs of involution, although clinically the lesions appeared fully developed. In the specimen taken for biopsy from near the axilla the ganglion cells were much less numerous than in the specimens just described. The epidermis was no longer compressed but was slightly acanthotic. Vacuolar degeneration of the ganglion cells was evident, simulating that seen in the appendix (fig. 4 *F*), yet stains for fats or lipids gave negative results. No foam or xanthoma cells were seen. Apparent transitions between ganglion cells and cells of the reticulo-endothelial system were more evident (figs. 3 *A* and *B*). The superficial vessels and capillaries were no longer dilated, but revealed marked proliferation of the endothelium even to the point of obliteration of their lumens. There was a perivascular infiltrate about the sweat glands and ducts, composed chiefly of cells of lymphocytic characteristics with a few eosinophils and polymorphonuclear leukocytes and one or two ganglion cells. A few mitotic figures were evident in cells of lymphocytic or connective tissue origin but not in the ganglion cells. At one edge of the tumor there was a nerve bundle lying in the upper portion of the cutis, surrounded by lymphocytes but not connected with the tumor proper or with ganglion cells. The hair follicles were atrophic. In the biopsy from the arm some of the ganglion cells had as many as three nuclei. In a small area just beneath the epidermis, where the latter was still compressed, there were numerous mature ganglion cells; in the rest of the section the changes duplicated those just mentioned. Most of the ganglion cells took the thionine stain poorly and only a few Nissl granules were seen. Orlandi and Maresch-Bielschowsky stains revealed several straight, argentophilic fibers which were frayed and beaded, suggestive of nerve fibers, and which in some instances appeared to arise from ganglion cells. One hair follicle containing a comedo-like plug of sebaceous material was seen in serial sections surrounded by the infiltrate. Stains for hemosiderin and melanin were positive, as in one of the early nodules.

The histopathologic picture of the sections for biopsy which were studied by Jaffé, and which we were able to review through his courtesy,[2] duplicated the observations just given, especially in regard to the lesions undergoing early involution. The tumor in these sections was not sharply circumscribed; there were diffuse, as well as nodular, infiltrates.

2. Jaffé, R. H.: Personal communication to the authors.

Biopsy of a large lesion from the thigh, the specimen for which was removed in February, 1933, which clinically had undergone partial involution so that it was almost at the level of the skin, histologically demonstrated an advanced stage of involution. One specimen fixed in formaldehyde and another fixed in alcohol were studied. There was a marked decrease in the number of ganglion cells, and in most of them there were degenerative changes, such as vacuolation, marked edema, lack of affinity for thionine stain (sections fixed in alcohol) with a few poorly staining Nissl granules, and distortion in the size and the shape of the cells. There was a group of ganglion cells at the periphery of the lesion, near the epidermis, but otherwise occasional ganglion cells were scattered throughout a dense fibrous tissue (fig. 5 *B*). The latter simulated the microscopic picture of dermatofibroma lenticulare[3] or fibrosis with hemorrhage. There were marked deposits of hemosiderin, not only in the upper portion of the cutis and beneath the epidermis, but throughout the nodule of the tumor. The hemosiderin was deposited in granules of varying size, especially in chromatophores, but also in the cells of the vessel walls, occasionally in a degenerating ganglion cell. Silver stains revealed the melanin confined to the epidermis and to a few chromatophores in the cutis. There was a marked increase in the cells of the vessel walls, fibroblasts and histiocytes. Many large fibroblastic or histiocytic cells were seen, which, however, could be distinguished from ganglion cells by their smaller, more palely staining nuclei and nucleoli. Many of the smaller blood vessels were obliterated, the result of endothelial proliferation. There was an increase in lymphocytes and plasma cells; some of the latter had double nuclei. Eosinophilia was still pronounced, but there were only focal areas in which polymorphonuclear leukocytes were present. A few foreign body giant cells were present. Van Gieson stain disclosed a marked increase in connective tissue fibers staining red. Silver stains again showed an increase in *Gitterfäsern,* but were otherwise as previously noted. It is to be emphasized that the fibrosis was not comparable to the histopathologic picture of Recklinghausen's disease. Furthermore, in none of the specimens taken for biopsy were ganglion cells demonstrable in the normal skin adjacent to the nodules.

Study of the sections of the appendix, which was removed in August, 1930, was reviewed; the previous diagnosis of chronic appendicitis of a mild degree was supported. In addition, however, there was found to be an increase in ganglion cells between, and in, the outer longitudinal and inner circular muscular coats, representing chiefly an increase in ganglion cells in Auerbach's plexus. In a single section of the appendix, as many as 30 ganglion cells were to be seen, which is in contrast to the normal number of from 5 to 10 cells. In many of the ganglion cells there was vacuolar degeneration evidenced by large, single or multiple vacuoles; this is not an uncommon finding in ganglion cells of the sympathetic nervous system. Thionine stain revealed typical fine Nissl granules (fig. 4 *F*). Stains for fats and lipids and polariscopic studies again gave negative results. Hemosiderin and melanin were not demonstrable. Most of the ganglion cells were multipolar, occasionally unipolar. Silver stains revealed dendritic processes and argentophilic properties similar to those seen in the ganglion cells of the skin. It is to be empha-

3. Traub, E. F., and Monash, Samuel: Dermatofibroma: Report of Cases, Arch. Dermat. & Syph. **26**:250 (Aug.) 1932.

sized that the appendix was not appreciably enlarged, nor was there any formation of tumor or suggestion of neurinoma, in contrast to Oberndorfer's [4] case in which both formation of tumor and neurinoma (Recklinghausen's disease) occurred.

Histopathologic observations at biopsy of the skin may be summarized briefly as follows: In early lesions the nodule of the tumor was composed predominantly of very large cells having one or two large, palely-staining vesicular nuclei containing little chromatin and possessing one, or occasionally two, large densely-staining nucleoli. Thionine stain revealed many fine Nissl granules in the cytoplasm, characteristic of ganglion cells taking origin from sympathetic or sensory nerve tissue, whereas silver stains showed multiple dendritic processes in some of the ganglion cells, characteristic of sympathetic ganglion cells. In addition, there were many lymphocytes (some possibly representing capsular cells), marked increase in eosinophils and numerous polymorphonuclear leukocytes, mast cells, plasma cells, endothelial cells, histiocytes and fibroblasts. There was a rich capillary network throughout the tumor, with extravasation of erythrocytes. Biopsy of a lesion that was undergoing involution revealed marked decrease in ganglion cells and an increase in fibroblasts and cells of the reticulo-endothelial system, together with obliteration of the lumens of many of the blood vessels and marked deposits of hemosiderin. In no instance could fats or lipids be demonstrated in the ganglion cells.

GANGLION CELLS AND HISTIOCYTES

In a consideration of the histopathologic changes in this case, it is pertinent to include a more detailed description of the ganglion cells and the histiocytes, and of their pathologic changes, because the different pathologic interpretations in this case have been based on the morphology of the large ganglionic cells. The debate has been as to whether these cells were true ganglion cells or merely altered histiocytes.

Ganglion cells (nerve cells) are of ectodermal origin, in contrast to histiocytes and other cells of the reticulo-endothelial system, which are of mesodermal origin. However, ganglion cells are not normal constituents of the glabrous skin of human beings. We have been unable to find, in textbooks on histology, pathology, dermatopathology or neuropathology, any description of ganglion cells in the skin. Kappers [5] stated that primary ganglion cells in the skin are numerous in coelenterates but are very scarce in vertebrates, and some authors doubt their occurrence in mammals. The ganglion cells in our case apparently took

4. Oberndorfer: Partieller primärer Riesenwuchs des Wurmfortsatzes kombiniert mit Ganglioneuromatose, Ztschr. f. d. ges. Neurol. u. Psychiat. **72**:105, 1921.

5. Kappers, C. U. A.: Principles of Development of the Nervous System (Neurobiotaxis), in Penfield,[8] vol. 1, p. 47.

origin from tissue of the sympathetic nervous system, as was evidenced by their multiple dendritic processes (multipolar) and their fine Nissl granules. Therefore only this type of ganglion cell will be described, although it must be borne in mind that the ganglion cells of sensory parts of cranial and spinal nerves differ from the sympathetic nervous system essentially in that they are usually monopolar and present coarse, fine or clumped Nissl granules, and in that, in tumors composed of the cells, it may be impossible to ascertain the origin of the ganglion cells without concomitant evidence.

The sympathetic ganglions, normal and pathologic, have been described in detail by de Castro.[6] Sympathetic ganglion cells are round, oval or pear-shaped elements, with multiple dendritic processes having a clear vesicular nucleus and one or two prominent, densely-staining nucleoli. Multinucleated ganglion cells are frequently seen. Thionine or toluidine blue stains reveal many fine Nissl granules in the cytoplasm of the cell. The Nissl granules, nucleus and nucleolus tend to be argentophilic. The cells vary from 15 or 20 to 60 microns in diameter. According to de Castro, the ganglion cells contain two types of pigment; first, a dark or yellowish-brown, melanotic pigment, and, second, a fatty pigment or lipopigment, soluble in alcohol and xylene. The latter pigment stains with sudan III and osmic acid. Of greater significance are the data of Craig and Kernohan [7] who have found in a large series of cases that deposits of pigment in the ganglion cells of the sympathetic system vary according to the age of the patient, and may be decreased or absent in youth and even in early adult life; also, they found that pigment may be decreased or absent in immature tumor cells. Ganglion cells are enclosed within a connective tissue capsule lined with satellite cells (capsular cells) the exact nature of which remains to be determined. Experimental evidence of de Castro shows that survival of the ganglion cells is dependent especially on a good supply of blood.

Neuropathologic terminology in regard to tumors composed of immature and mature cells, including ganglionic tumors, is still confusing. The same is true of neoplasms of the reticulo-endothelial system. The pathology of tumors involving ganglion cells, except those

6. de Castro, F.: Sympathetic Ganglia, Normal and Pathological, in Penfield,[8] vol. 1, p. 319.

7. Craig, W. McK., and Kernohan, J. W.: The Surgical Removal and Histological Studies of Sympathetic Ganglia in Raynaud's Disease, Thrombo-Angiitis Obliterans, Chronic Infectious Arthritis and Scleroderma, Surg., Gynec. & Obst. **56**:767 (April) 1933.

of the skin, is fully covered in various articles by Kappers, Penfield [8] de Castro, Bailey [9] Bielschowsky,[10] Masson [11] and Kernohan.[12]

The following facts regarding ganglioneuroma in general are also of interest in regard to our case. Bielschowsky pointed out that in the periphery, especially in areas of innervation of the sympathetic nervous system, proliferation of neurocellular elements may occur. In an early period of embryogenesis, neuroblasts (sympathoblasts) emigrate from the ganglionic crest of the medullary tube and advance to the intramural plexus of the viscera. The length of the path favors faulty cellular development, and the result is immature forms potentially able to proliferate. Penfield stated that peripheral nerves often grow along blood vessels, especially the nerve strands of the postganglionic autonomic system. According to Bielschowsky, in the embryogenesis of sympathetic ganglions, neurocytes of three developmental stages may be recognized as follows:

Sympathogonias (primitive neurocytes) { Sympathoblasts (neuroblasts): sympathetic ganglion cells (gangliocytes) / Pheochromoblasts: chromaffin cells (pheochromocytes)

The sympathogonias (primitive neurocytes) are seen especially in tumors of the liver and suprarenal glands; the tumors simulate lymphosarcoma of the small cells; on superficial examination they appear as collections of lymphocytes but tend to assume an alveolar arrangement and possess a definite reticular syncytium. Sympathoblasts (neuroblasts) are larger than sympathogonias and have a clearer, almost vesicular nucleus and a larger protoplasmic body. The final stage is represented by sympathetic ganglion cells. According to Bailey, one occasionally finds neuroblastic and pheochromic characteristics side by side. Marinesco [13] stated that nerve cells (ganglion cells) may elaborate chemotac-

8. Penfield, Wilder: Cytology and Cellular Pathology of the Nervous System, New York, Paul B. Hoeber, Inc., 1932, vol. 3, p. 973.

9. Bailey, Percival: Cellular Types in Primary Tumors of the Brain, in Penfield,[8] vol. 3, p. 935.

10. Bielschowsky, Max: Neuroblastic Tumors of the Sympathetic Nervous System, in Penfield,[8] vol. 3, p. 1085.

11. Masson, P.: Les naevi pigmentaires, tumeurs nerveuses, Ann. d'anat. path. **3**:417 (May) 1926; Carcinoids (Argentaffin-Cell Tumors) and Nerve Hyperplasia of the Appendicular Mucosa, Am. J. Path. **4**:181 (May) 1928; Neural Proliferations in the Vermiform Appendix, in Penfield,[8] vol. 3, p. 1097.

12. (*a*) Kernohan, J. W.: Primary Tumors of the Spinal Cord and Intradural Filum Terminale, in Penfield,[8] vol. 3, p. 993. (*b*) Kernohan, J. W.; Learmonth, J. R., and Doyle, J. B.: Neuroblastomas and Gangliocytomas of the Central Nervous System, Brain **55**:287, 1932. (*c*) Kernohan, J. W.; Woltman, H. W., and Adson, A. W.: Intramedullary Tumors of the Spinal Cord: A Review of Fifty-One Cases with an Attempt at Histologic Classification, Arch. Neurol. & Psychiat. **25**:679 (April) 1931.

13. Marinesco, G.: Sur un cyto-neurome de la région infundibulaire (Ganglioneurome), Ann. de méd. **20**:577 (Dec.) 1926.

tic substances which irritate the walls of the vessels, with resultant inflammatory or hyaline reactions. In summarizing forty-seven cases of ganglioneuromas of various types, Wahl [14] stated that five were multiple growths, and that ganglioneuromas usually affect young persons but may affect persons of any age. Wahl wrote: "The life history of the blastomatous ganglion cells is very short and the cells are very prone to degenerative changes." The latter consist of vacuolar, myelin, hyaline or myxomatous changes. Xanthomatous changes in a ganglioneuroma were reported by Beitzke.[15] Bielschowsky stated that many sympathetic ganglion cells possess nonmedullated axons. In the majority of ganglioneuromas, however, only a few of the ganglion cells have nerve fibers. It is not necessary to have medullated nerve fibers, definite axons or even well developed dendrites to make a diagnosis of ganglioneuroma.[16] Many ganglioneuromas are accompanied by inflammatory reaction calling forth polymorphonuclear leukocytes and lymphocytes and plasma cells.[17] An increase in mast cells has also been noted.[18] Malignant ganglioneuromas may develop, with metastasis to other organs.[19] In our case, however, there was no evidence of malignancy.

Although ganglion cells or ganglionic tumors are not usually considered in the differential diagnosis of various types of dermatosis, the reticulo-endothelial system is a relatively familiar subject, as the result of the work of Aschoff and his collaborators. That the reticulo-endothelial system of the skin plays a prominent part in various types of dermatosis is generally accepted. As examples may be cited: xanthomas

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14. Wahl, H. R.: Neuroblastoma. With a Study of a Case Illustrating the Three Types that Arise from the Sympathetic System, J. M. Research **30**:205, 1914.

15. Beitzke, H.: Ueber ein Ganglioneuroma xanthomatosum, Beitr. z. path. Anat. u. z. allg. Path. **69**:400, 1921.

16. (*a*) McFarland, Joseph: Ganglioneuroma of Retroperitoneal Origin: Report of a Case with Bibliographic References to Ninety-Three Similar Tumors, Arch. Path. **11**:118 (Jan.) 1931. (*b*) Kernohan, J. W.: Personal communication to the authors.

17. Lhermitte, J., and Dumas, R.: Ganglio-neuromes disséminés du système nerveux périphérique, Bull. Assoc. franç. p. l'étude du cancer **9**:23 (Feb. 23) 1920. Kernohan.[16b]

18. (*a*) Kredel, L., and Beneke, R.: Ueber Ganglioneurome und andere Geschwülste des peripheren Nervensystems, Deutsche Ztschr. f. Chir. **67**:239, 1902. (*b*) Wegelin, Carl: Ueber ein Ganglioneurom des Sympathicus, Beitr. z. path. Anat. u. z. allg. Path. **46**:403, 1909.

19. Dunn, J. S.: Neuroblastoma and Ganglio-Neuroma of the Suprarenal Body, J. Path. & Bact. **19**:456, 1914-1915. Millar, W. G.: A Malignant Melanotic Tumour of Ganglion Cells Arising from a Thoracic Sympathetic Ganglion, J. Path. & Bact. **35**:351, 1932. Bielschowsky.[10]

of all types;[20] lymphoblastomas, especially mycosis fungoides;[21] Kaposi's sarcoma;[18] most of the chronic granulomas of the skin, especially those of leprosy, syphilis, rhinoscleroma and tuberculosis; pigmentary disturbances such as hemochromatosis;[22] lupus erythematosus (unpublished data); histiocytoma of the skin,[23] and many inflammatory types of dermatosis. It is impossible in this report to review the literature on the reticulo-endothelial system, because it is too voluminous. In a recent article, Jaffé [24] summarized most of the literature. The reticulo-endothelial system of the skin is composed of a multiplicity of types of cells. There are cells of the vessel walls, both endothelial and adventitial; large and small fibroblasts; histiocytes, either fixed or wandering in the tissues or the blood stream, and transitional forms between lymphocytes, monocytes and histiocytes. The pathologic picture varies greatly according to the stage of the process and according to which type or types of cells predominate in the individual case. Some of the forms of dermatosis just mentioned are examples of this variability. Maximow [25] referred to cells of the reticulo-endothelial system which might be regarded as comparable to the large, palely-staining ganglionic cells in our case. He wrote: "In the transition forms between the fibroblasts and histiocytes, the nucleus is fairly large and has a more or less oval shape; its chromatin is distributed in fine dust-like granules and conspicuous nucleoli are present. The cell body becomes thin and transparent and the sharp contours become indistinct."

COMMENT ON HISTOPATHOLOGIC OBSERVATIONS IN CASE REPORTED

That the histopathologic differential diagnosis between reticulo-endotheliosis and ganglioneuroma may be difficult, not only when the changes are in the skin, but also when they are in the brain, is evidenced by

20. (*a*) Gans, Oscar: Histologie der Hautkrankheiten, Berlin, Julius Springer, 1928, vols. 1 and 2. (*b*) Urbach, Erich: Lipoidstoffwechselerkrankungen der Haut, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1932, vol. 12, pt. 2, p. 238.

21. Fraser, J. F.: The Interpretation of Mycosis Fungoides as a Variety of Lymphosarcoma, Arch. Dermat. & Syph. **11**:425 (April) 1925; Mycosis Fungoides: Its Relation to Leukemia and Lymphosarcoma, ibid. **12**:814 (Dec.) 1925. Montgomery, Hamilton: Exfoliative Dermatosis and Malignant Erythroderma, ibid. **27**:253 (Feb.) 1933.

22. Montgomery, Hamilton, and O'Leary, P. A.: Pigmentation of the Skin in Addison's Disease, Acanthosis Nigricans and Hemochromatosis, Arch. Dermat. & Syph. **21**:970 (June) 1930.

23. Woringer, F., and Kwiatkowski, S. L.: L'histiocytome de la peau, Ann. de dermat. et syph. **3**:998, 1932.

24. Jaffé, R. H.: The Reticulo-Endothelial System: Its Rôle in Pathologic Conditions in Man, Arch. Path. **4**:45 (July) 1927.

25. Maximow, A. A.: The Macrophages or Histiocytes, in Cowdry, E. V.: Special Cytology, ed. 2, New York, Paul B. Hoeber, Inc., 1932, vol. 2, p. 718.

Foot and Cohen's [26] article. In favor of the diagnosis of reticulo-endotheliosis (reticulohistiocytic granuloma of the skin) in our case are the following facts: Jaffé, who studied representative sections of all of the specimens taken for biopsy, and Klemperer and Foot, who studied representative sections of the specimens taken for biopsy in February and May, 1932, favored the diagnosis of reticulo-endotheliosis. Jaffé's first impression was that the large cells were ganglion cells, and that the tumor might be one of the cutaneous manifestations of Recklinghausen's disease. However, he felt that the large ganglionic cells were more intimately mixed with lymphocytes and oxyphilic leukocytes than he had seen in a ganglioneuroma or neuroma, and that the lesions spread out as a granuloma and were not encapsulated or separated from the mesenchyme. He regarded the large cells as secondary to the formation of the round cells at the periphery of the lesion and thought that under high magnification it was possible to trace these large cells to mesenchymal elements, especially when van Gieson's stain was used.

Jaffé and other authors are of the opinion that in reticulo-endotheliosis of the internal organs the histiocytes may assume a "ganglion cell-like appearance." Their cytoplasm is abundant and homogeneous: the nuclei are round and vesicular and contain a prominent central nucleus. It is almost impossible, on a morphologic basis, to distinguish the latter cellular forms from true ganglion cells. Jaffé has expressed the belief that only the demonstration of neurofibrils and Nissl bodies will settle the question definitely. He raised the question as to whether the large ganglion-like cells might not store something similar to lipoids (the latter view was also expressed by Weidman). Foot and Cohen called attention to the fact that impregnations with silver stains disclosed an arrangement of reticular fibers common to reticulo-endothelial tumors, and that there was no evidence of Meissner or pseudo-Meissner corpuscles comparable with that observed in pigmented nevi. Klemperer, recognizing the morphologic resemblance of the large cells to ganglion cells, concurred essentially with Jaffé's view. In a recent communication, Jaffé [2] stated:

> I do not know of any other type of cell which is endowed with such a pleomorphism as are the reticulohistiocytes. It is difficult for me to conceive that ganglion cells, the highest differentiated cells of the body, should come and go as do the large cells in our case, and that they should mix so intimately with cells of undoubted granulomatous character. But perhaps I am too much biased by my general impression. I am always trying to find differences rather than similarities.

Our diagnosis of multiple ganglioneuroma of the skin was concurred with essentially by Globus, Weidman and several general pathologists.

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26. Foot, N. C., and Cohen, Sander: Report of a Case of Retotheliosarcoma (Reticulosarcoma) of the Cerebral Hemisphere, Am. J. Path. **9**:123 (Jan.) 1933.

Globus said that there were two cell types in the nodule of the tumor; first, a large cell with nuclei and nucleoli resembling ganglion cells and, second, a small cell, round in outline, with a well formed nucleus not unlike the capsule cells in a ganglion. He favored the diagnosis of a form of disseminated ganglioneuroblastoma, an expression of Recklinghausen's disease. Weidman [27] stated that our case was the first in which he had seen a ganglion cell tumor in the skin.

We believe that the large cells under consideration are ganglion cells, for the following reasons: The tumor cells present morphologic features of sympathetic ganglion cells, including large, vesicular nuclei, one or two prominent, densely-staining nucleoli, multiple dendritic processes and fine Nissl granules in the cytoplasm of the cells. In a study of more than four thousand specimens of the skin taken for biopsy, one of us (Dr. Montgomery) has not seen ganglion cells. We reviewed sections taken from patients with many forms of dermatosis in which the reticulo-endothelial system of the skin was involved without being able to demonstrate ganglion cells. That reticulo-endothelial cells, especially those of the internal organs or in cultures of the tissue, may simulate ganglion cells in morphologic appearance must be accepted, but we have not found them reported in the literature in such abundance as was observed in our case nor have they possessed Nissl granules. It was impossible in our case to distinguish with sureness between *Gitterfäsern* (reticular tissue) and nonmedullated nerve fibers (various silver stains were used), although the Maresch-Bielschowsky stain brought out the *Gitterfäsern* and Orlandi and Bielschowsky stains disclosed an increased argentophilic affinity of the ganglion cells, especially of their nuclei and dendritic processes. We did not find examples of histiocytes presenting long, straight dendritic or axon-like processes such as that shown in figure 5 *C*. Absence of medullated nerve fibers has frequently been noted in ganglioneuromas. Failure to demonstrate the connection between cutaneous nerve bundles and ganglion cells or the presence of tactile, pacinian or Wagner-Meissner corpuscles can be explained on the basis that the ganglion cells developed from undifferentiated neurocytes, possibly accompanying the blood vessels. The multiplicity of cell types is not against the diagnosis of ganglioneuroma, because evidences of inflammatory reaction, including mast cells, polymorphonuclear leukocytes and lymphocytes, have been described as having been seen in ganglioneuromas elsewhere in the body. Eosinophilia is a common reaction in many types of dermatosis. Some of the lymphocytic cells in our case could well represent capsule cells, but it seems more likely that the collections of lymphocytes at the periphery of the nodule merely represent a defense

27. Weidman, F. D.: Personal communication to the authors.

reaction. Perhaps a similar condition to that described by Korbsch,[28] for Recklinghausen's disease, could exist; namely, cells of ectodermal origin (in our case, ganglion cells) are penetrated by a network that is mesodermal in origin (reticulo-endothelial system). This view would explain the apparent transitions between histiocytes and ganglion cells and their intimate association. The spontaneous involution of the lesions tends to support the diagnosis of ganglioneuroma. Among other factors, ganglion cells require a rich vascular supply in order to survive in a foreign environment. The involution of the lesions in our case could be explained on the basis that, as the result of a tumor or nodule of ganglion cells in the skin, the reticulo-endothelial system participated as a defense mechanism, with resultant thickening of the lumens of the superficial vessels and consequent disappearance of the ganglion cells. Atrophy or scarring did not result from the ensuing fibrosis, for neither the epidermis nor the subcutaneous tissue was appreciably involved.

REVIEW OF THE LITERATURE

The literature will be reviewed under five headings: (1) multiple ganglioneuromas of the skin and subcutaneous tissues; (2) solitary ganglioneuroma and plexiform neuroma; (3) solitary or multiple lesions usually classified under the term "neuroma of the skin"; (4) certain cases of neurofibromatosis, and (5) xanthoma.

Multiple ganglioneuromas involving the skin or subcutaneous tissues are rare. In 1898, Knauss[29] reported a case of multiple ganglioneuroma affecting a child, aged 11 years. There were about sixty subcutaneous tumors, the size of a cherry or orange, distributed on the trunk and the upper part of the thigh. The clinical appearance was that of Recklinghausen's disease or of multiple lipomatosis. The tumors were composed of large numbers of ganglion cells, many nonmedullated nerve fibers and a few medullated nerve fibers. The ganglion cells could not be connected with the nonmedullated fibers or with any nerve trunk or visible nerve filament (neurofibrilla). Serial sections of a small tumor studied by Knauss revealed the ganglion cells in relationship to the wall of an artery, and he believed that the tumors were derived from the minute ganglions of the finest terminal fibers of the sympathetic system accompanying the blood and lymph vessels. He cited Soyka's case, reported in 1878, in which numerous lesions the size of a fist were found in the skin of the trunk, neck and lower extremities, and in which

28. Korbsch, Heinrich: Zur Morphologie und Genese des Neurinomes, Arch. f. Psychiat. **92**:183, 1930.

29. Knauss, K.: Zur Kenntnis der echten Neurome: Neuroma verum multiplex amyelinicum gangliosum, (Aus dem stadtärztlichen Laboratorium zu Stuttgart), Virchows Arch. f. path. Anat. **153**:29, 1898.

at postmortem examination various tumors were found in the brain, spinal cord and nerves of the cervical and axillary plexuses. The tumors contained numerous ganglion cells. Miller,[30] however, expressed the belief that this case cannot be accepted without doubt. Kredel and Beneke [18a] reported a case in 1902 which was almost a duplicate of Knauss' case, except that there were many more subcutaneous nodules; the nerve fibers were nonmedullated, and lymphocytes and a few mast cells were present. In 1920, Lhermitte and Dumas [17] reported a case of disseminated ganglioneuroma. Their patient, a man aged 35, whose skin revealed diffuse, coffee-colored pigmentation, presented multiple tumors in the subcutaneous tissues and peripheral nerves. Two tumors from the iliac crest and from the gluteal region presented the appearance of an encapsulated neurofibroma (Recklinghausen's disease), but Nissl stains disclosed many cells presenting all the morphologic features of ganglion cells; also, vacuolar degeneration of some of the cells was seen. The authors regarded the ganglioneuroma as originating from the central nervous system rather than from the sympathetic system. That the tumors presented features of neurofibroma and of ganglioneuroma was explained on the basis of their common origin; both may develop from the neural ectoderm, and, depending on the differentiation of the primitive neurocyte, Schwann cells or ganglion cells may ensue. These three cases and possibly Soyka's case are the only instances which we found in the literature of multiple cutaneous or subcutaneous lesions presenting ganglion cells. All of the cases presented clinical features of multiple lipomatosis or of Recklinghausen's disease (neurofibroma); none showed the clinical features seen in our case.

Solitary ganglioneuroma has been reported as involving the skin, but cases in which this occurred can scarcely be confused with our case. The growths usually occurred in the form of plexiform neuromas involving especially the eyelids and cervical region, and there has been an increase, or even a tumor formed of ganglion cells, usually associated with medullated or nonmedullated nerve fibers and Schwann cells.[31] Amputation neuromas need only be mentioned. No case of cutaneous ganglioneuroma, solitary or multiple, has definitely been diagnosed clinically.

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30. Miller, J. W.: Ein Fall von metastasierenden Ganglioneurom, Virchows Arch. f. path. Anat. **191**:411, 1908.

31. (*a*) Bigler, J. A., and Hoyne, Archibald: Ganglioneuroma; Report of Two Cases with a Review of the Literature, Am. J. Dis. Child. **43**:1552 (June) 1932. (*b*) Stewart, F. W., and Copeland, M. M.: Neurogenic Sarcoma, Am. J. Cancer **15**:1235 (July) 1931. (*c*) Penfield, W., and Young, A. W.: Nature of von Recklinghuasen's Disease and Tumors Associated with It, Arch. Neurol. & Psychiat. **23**:320 (Feb.) 1930. (*d*) Wahl.[14] (*e*) McFarland.[16a]

The subject of cutaneous neuroma has recently been reviewed in this country by Duemling [32] and Ludy.[33] The tumors are composed of nonmedullated or medullated nerve fibers, or both, together with a varying amount of fibrous tissue.[34] Ganglion cells are not present. Ludy's case is of interest here because of the clinical resemblance to our case. The patient had many discrete nodules on the trunk and extremities which were painful on pressure and which were diagnosed clinically as tuberculids. Little's [35] case may have resembled ours clinically; judging from the brief pathologic description, it belongs with cases of nonmedullated or medullated neuroma of the skin. Ganglion cells were not described in either case. Ludy called attention to the resemblance of a few of the cases to cases of leiomyoma. He said that there is frequently an increase in the arrectores pilorum muscles in cases of cutaneous neuroma, and this was also observed in our case. None of the cutaneous neuromas was diagnosed clinically.

Many cases of Recklinghausen's disease (neurofibromatosis or false neuroma [Virchow]) have interrelationship with cases of true neuroma such as have been mentioned.[36] In cases of neurofibromatosis of the internal organs, medullated and nonmedullated nerve fibers and even an occasional ganglion cell have been described.[31c] Even today there is lack of uniformity of opinion as to whether Recklinghausen's disease is of ectodermal or mesodermal origin, or whether, as some authors [37] believe, that both the ectoderm and the mesoderm play a part. Verocay [37a] originated the term neurinoma as the result of his observation in a case in which there were endotheliomas of the dura, many subcutaneous neurofibromas, several true neuromas involving the spinal nerves, gliomas in the brain stem and a true neuroma arising in the trunk of the sympathetic system. He explained the presence of sheath cells (Schwann cells), ganglion cells and nerve fibers as the result of varying

32. Duemling, W. W.: Cutaneous Neuroma: Report of an Unusual Case Simulating Keloid, Arch. Dermat. & Syph. **19**:226 (Feb.) 1929.

33. Ludy, J. B.: Cutaneous Neuroma, Arch. Dermat. & Syph. **21**:419 (March) 1930.

34. (*a*) Kyrle, Josef: Vorlesungen über Histo-biologie der menschlichen Haut und ihrer Erkrankungen, Berlin, Julius Springer, 1925. (*b*) Frobeese, Curt: Das aus markhaltigen Nervenfasern bestehende ganglien-zellenlose, echte Neurom in Rankenform. Zugleich ein Beitrag zu den nervösen Geschwülsten der Zunge und des Augenlides, Virchows Arch. f. path. Anat. **240**:312, 1922. Gans.[20a]

35. Little, E. G. G.: Case of Multiple Neuroma of the Skin, Proc. Roy. Soc. Med. (Sect. Dermat.) **12**:35 (March 20) 1919.

36. Thomson, A.: On Neuroma and Neuro-Fibromatoses, Edinburgh, Turnbull and Spears, 1900, p. 168.

37. (*a*) Verocay, José: Zur Kenntnis der Neurofibrome, Beitr. z. path. Anat. u. z. allg. Path. **48**:1, 1910. (*b*) Korbsch.[28] (*c*) Thomson.[36] (*d*) Penfield and Young.[31c]

differentiation of a misplaced mother cell, that is, the primitive neurocyte. Similar examples are numerous in the literature.[38] Neurofibromatosis is characterized, microscopically, by two types of cells:[39] Antoni type A, composed of areas of perineural fibroblastoma, and Antoni type B, consisting of tissue of a tangled or reticular structure. Hosoi[40] emphasized that operative removal of a painful neurofibromatous nodule may be followed by crops of benign neurofibromas elsewhere in the body, but if sarcomatous changes are already present, malignant metastasis will result.

In Oberndorfer's case of ganglioneuroma of the appendix there were neurinomatous changes, and both the mother and a brother of the patient had definite neurofibromatosis of the skin. Geymüller[38d] reported the case of a girl who was first seen when she was 13 years of age, at which time a tumor removed from the side of the neck was found to be a ganglioneuroma, with much fibrous tissue and many nonmedullated nerves. Following puberty, a typical picture of Recklinghausen's disease of the skin developed and was confirmed histologically. Geymüller felt that the early lesions contained ganglion cells, and that later a fibrous growth predominated. Lazarescu[41] and his associates cited the case of a patient, aged 2½ years, who had a congenital tumor of the upper eyelid, which was, histologically, a plexiform neuroma, and exophthalmos and beginning Recklinghausen's disease, with cystic changes in the bone. It is thus apparent that transitions between ganglioneuroma, medullated and nonmedullated neuroma and Recklinghausen's disease (neurinomas) may occur, and that it is not always possible to draw a sharp dividing line between them (namely, between true and false neuromas, and the distinctions within the groups).

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38. (*a*) Foerster, O., and Gagel, O.: Ein Fall von Recklinghausenscher Krankheit mit fünf nebeneinander bestehenden verschiedenartigen Tumorbildungen, Ztschr. f. d. ges. Neurol. u. Psychiat. **138**:339, 1932. (*b*) Orzechowski, K.: Neurinome: Pathologische Anatomie, in Jadassohn, J.,[20b] vol. 12, pt. 2, p. 163. (*c*) Saafeld, Edmund, and Saafeld, Ulrich: Die Recklinghausensche Krankheit, in Jadassohn, J.,[20b] vol. 12, pt. 2, p. 65. (*d*) Geymüller, E.: Beiträge zur Kenntnis der Ganglioneurome und ihrer Beziehungen zu der Recklinghausen'schen Krankheit, Beitr. z. klin. Chir. **115**:712, 1919. (*e*) Kirch, Eugen: Zur Kenntnis der Neurinome bei Recklinghausenscher Krankheit, Ztschr. f. d. ges. Neurol. u. Psychiat. **74**:379, 1921. (*f*) Kernohan, J. W., and Parker, H. L.: Case of Recklinghausen's Disease with Observations on Associated Formation of Tumors, J. Nerv. & Ment. Dis. **76**:313 (Oct.) 1932.

39. Gans.[20a] Kryle.[34a] Penfield.[8] Penfield and Young.[31c] Kirch.[39e]

40. Hosoi, Kiyoshi: Multiple Neurofibromatosis (von Recklinghausen's Disease) with Special Reference to Malignant Transformation, Arch. Surg. **22**:258 (Feb.) 1931.

41. Lazarescu, Demitru, and Lazarescu, Eugénia. Névrome plexiforme palpébro-orbitaire et maladie de Recklinghausen, Ann. d'ocul. **168**:166 (Jan.) 1931.

That xanthomas may at times be intimately associated with neuromas or with Recklinghausen's disease seems far-fetched, yet definite evidence of this association exists. Beitzke reported xanthomatous changes in a ganglioneuroma of a tumor of the acusticus (cerebellopontile angle). There were large cells with small nuclei and doubly refractile crystals which stained bluish gray with Smith-Dietrich stain, and there were a few cells at the periphery containing hemosiderin. The histologic picture was that of a neurinoma with Schwann cells and many typical and atypical ganglion cells, a few of which showed vacuolation. The author expressed the belief that the xanthomatous deposits did not represent degenerative changes or a resorptive process, but that true xanthomatous cells were present. Wlassico [42] reported sudanophilic cells about vessels and near medullated nerve fibers, as well as between tumor cells in a case of neurofibroma. Weidman [43] considered the part played by nervous tissue in xanthomatosis in relation to a lesion in the pons (a tumor of the acusticus). He stated, however, that "such a widespread biologic vagary as intracellular lipidosis can scarcely be confined to a single class of cell such as a nerve cell," and that "a nerve tissue basis could only obtain in a fraction of cases of cutaneous xanthomas." He further stated that both tumors of the acusticus and cutaneous xanthomas are preeminently benign and may at times exhibit the structure of neurofibromas.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis has already been considered in the review of the literature regarding true and false neuromas, including Recklinghausen's disease and xanthomas. The combination of clinical and histopathologic observations in our case excludes both xanthoma and Recklinghausen's disease. Dermatofibroma lenticulare (noduli cutanei) and fibrosis with deposits of hemosiderin or hemorrhagic or xanthomatous changes, including Worringer's histiocytoma of the skin, may be confused clinically with ganglioneuroma. The lesions are firmer than ganglioneuromas, have a more brownish pigmentation and on involution leave pigmented, depressed, atrophic areas. Leukemic (lymphoblastomatous) infiltrations of the skin usually are not yellowish and are readily diagnosed from the concomitant laboratory and histopathologic observations. The same holds true for tuberculids. In our case, Kaposi's sarcoma was suggested by the low power microscopic view of the early

42. Wlassico, Tibar: Sudanophil-granulierte Zellen in Neurofibromen, abstr., Zentralbl. f. Haut.- u. Geschlechtskr. **42**:98, 1932.

43. Weidman, F. D.: Xanthoma of the Skin and Larynx Associated with Carcinoma of the Stomach and Regressive Xanthoma of the Pons, Arch. Dermat. & Syph., to be published.

lesions (figs. 4 *A* and *B*), but no deposits of hemosiderin were present in the specimen illustrated in the figure just referred to, and detailed clinical and pathologic studies, together with the clinical course of the disease, ruled out such a diagnosis. The same holds true for lichen planus. Multiple leiomyomas are usually painful; certainly they present an entirely different histopathologic picture.

ETIOLOGY

It has already been stated that ganglion cells are not a normal constituent of the glabrous skin. There are three possible etiologic interpretations of our histopathologic observations: 1. Knauss believed that ganglion cells may arise from the sympathetic plexuses associated with the peripheral blood vessels. Figure 7 *A* supports the view. 2. The question is raised whether appendectomy did not result in benign dissemination of ganglioneuromas to the skin, similar to the dissemination that Hosoi pointed out, which may follow removal of a benign lesion in neurofibromatosis. This concept, however, remains to be proved. In our present state of knowledge it seems more logical to interpret our case as one of *Missbildung* (malformation) [44] in which the primitive neurocytes accompanying the superficial blood vessels, or independent of them, developed into ganglion cells. Supporting this view was the incomplete rotation of the colon, with an increase in the ganglion cells in the appendix. There was no clinical or histopathologic evidence in our case that the condition was related to Recklinghausen's disease (multiple neurofibromatosis) or to abortive forms of it.

SUMMARY AND CONCLUSIONS

A case of multiple cutaneous nodules of the skin is reported, which clinically suggested multiple xanthoma, but which we believe to be a case of multiple ganglioneuroma with origin from the peripheral sympathetic nervous system. There was no histologic evidence of xanthoma in the early, well developed and involuting lesions that were studied. We believe that the large, palely staining cells which predominated in the early nodules presented the outstanding morphologic features of sympathetic ganglion cells, namely, one or two prominent, densely staining nucleoli, fine Nissl granules in the cytoplasm of the cell and multiple dendritic processes. Transitions between endothelial cells, histiocytes and the large palely staining ganglionic cells were apparent histologically; this led some pathologists to regard the ganglionic cells as histiocytes and the case as one of reticulo-histiocytic granuloma. It is our concept,

44. Jaffe wrote us that rather than the term "Missbildung" he prefers the term "hamartoma," in the sense in which E. Albrecht used it (tumor formation from misplaced embryonic cells).

however, that the histiocytes and the inflammatory and granulomatous changes seen in association with the ganglion cells are more satisfactorily explained as the results of a secondary process which, possibly because of interference with the vascular supply, resulted in disappearance of the ganglion cells and spontaneous involution of the lesions.

The interrelationships between ganglioneuromas, medullated or non-medullated neuromas, Recklinghausen's disease and xanthomas are considered. A differential diagnosis of ganglioneuroma is made from the conditions mentioned in the preceding sentence and also from dermatofibroma, fibrosis with deposits of hemosiderin or xanthomatous changes, tuberculids, Kaposi's sarcoma, lichen planus, leiomyoma and especially reticulohistiocytic granuloma of the skin.

The presence of multiple cutaneous tumors composed chiefly of ganglion cells is probably best explained on the basis of a malformation (*Missbildung*).

A review of the literature failed to disclose a comparable case on the basis of clinical and histopathologic features.

DISCUSSION

Dr. Sigmund Pollitzer, New York: I venture to discuss this paper only because I have had the good fortune, through the courtesy of Dr. Montgomery, to see and study many sections.

When I saw these sections last year, my opinion was that we were dealing with an endothelial cell tumor, though I could not feel sure about the large cells, some of which showed processes. In New York I showed the sections to two general pathologists, Dr. Klemperer of the Mount Sinai Hospital and Dr. Foote, formerly of Cincinnati and now of Cornell Medical School, both well known as excellent pathologists. These men rejected the idea of a ganglion cell tumor. On the other hand, Dr. Globus, neuropathologist of the Mount Sinai Hospital, had the courage to say that the cells were ganglion cells. My opinion was that we were dealing with an endothelial cell tumor with some peculiarities. If I have now changed my mind about the cells and incline toward the belief that the case is one of ganglioneuroma, it is still with some reservations.

First, this case is unique in the literature. Ganglioneuroma occurs in one or two rather massive growths and is a rare and always a very grave disease. I should like to know what Dr. O'Leary has formulated in his mind as to the origin of the cells. I presume that their origin may be ascribed to nerve endings in the skin; but how does one account for the multiple eruption over the entire skin suggesting metastases or multiple deposits of circulatory origin? These two points are of profound interest, namely, the origin of the ganglioneuromatous cells and the cause of the proliferation of the ganglion cells in the short period of time over widely scattered areas of the skin.

Dr. M. F. Engman, St. Louis: We had the good fortune in St. Louis to see this case. The patient had previously been at the Mayo Clinic, but at that time the staff had not done the amount of laboratory work shown here, though at that time they thought that the lesions were ganglion tumors. It was a peculiar case

in every way. We first thought that the condition was xanthoma, but it was atypical. We had the patient placed in the hospital, and we studied him thoroughly but found no evidence of disturbance in lipids. Histologically, the condition looked like atypical xanthoma, but the demonstration here is so conclusive that it must be a ganglioneuroma.

Dr. Richard L. Sutton, Kansas City: I wish to congratulate these gentlemen on the splendid and scholarly manner in which this case has been worked up. The trouble with most of us is that we are too lazy to follow a puzzling or difficult case until the problem is solved.

Any one who has tried to investigate a condition which involves a study of neurologic as well as dermatologic literature will discover that there are some exceedingly interesting and mysterious people in the world. Some of our neurologic brethren are as puzzling as the allergists.

I congratulate Dr. O'Leary and Dr. Montgomery on this excellent piece of work.

Dr. Paul A. O'Leary, Rochester, Minn.: We do not know the etiology of the disease, but we have attributed the lesions to a malformation, or *Missbildung*. In the microphotographs I pointed out involuting types of ganglion cells, and it is our belief that the divergence of histopathologic opinions was in a great measure due to the fact that the biopsy of an involuting lesion showed only a few ganglion cells and many transitional cell types, some of which were of the reticulo-endothelial system.

PSEUDO-ATROPHODERMA COLLI

A HITHERTO UNDESCRIBED CONDITION

S. WILLIAM BECKER, M.D.
AND
KATHLEEN B. MUIR, M.D.
CHICAGO

During the last five years we have observed two female patients with a dermatosis which evidently has not been described in the literature. The following case is representative.

REPORT OF A CASE

History.—A Jewish girl, aged 19, single, in perfect health, presented lesions encircling the neck and involving the upper part of the thorax (fig. 1). She had noted the lesions four years previous to observation and did not believe that they had spread appreciably. She had had no symptoms. The lesions were generally worse in winter; they had cleared up once following ultraviolet therapy by means of the air-cooled quartz lamp. Recurrence had taken place two months later.

Examination.—On superficial examination the appearance of the lesions was that of a pigmentary disturbance suggesting vitiligo. This diagnosis had been made elsewhere. The lesions appeared to be atrophic. On close inspection the apparently depigmented portion was seen to be glossy, and the apparently pigmented regions consisted of epidermis thrown up into tiny folds. When the skin was put under tension, the contrast between the shiny and the dull areas was less marked but was still visible, and the dull areas were covered with fine scales. When traction was released, wrinkling was again apparent. While it was difficult to outline the individual lesions, the shiny pseudo-atrophic plaques seemed to be arranged largely in a vertical direction.

Microscopic Examination (fig. 2).—The stratum corneum was thick and loose. The stratum granulosum consisted of one layer of cells. The stratum mucosum was thin in one portion of the section and somewhat thickened in another, although not to a great extent. The papillae varied in prominence, but were, in general, not very prominent. The superficial vessels were dilated. A few dilated lymph spaces were also seen. The subpapillary portion of the dermis was loose and appeared edematous although the collagen stained normally. Elastic fibers were present throughout, but were less conspicuous in the areas of loosened collagen. Pigmentation was about the same throughout.

The patient was presented at the Chicago Dermatological Society, where the consensus was that the condition was pseudo-atrophic rather than actually atrophic. She was also presented at the clinical meeting of the American Dermatological Association. Eichenlaub mentioned having seen similar cases in Washington, and Michael reported spontaneous healing in a case which had been studied at the

From the Section of Dermatology of the Department of Medicine of the University of Chicago.

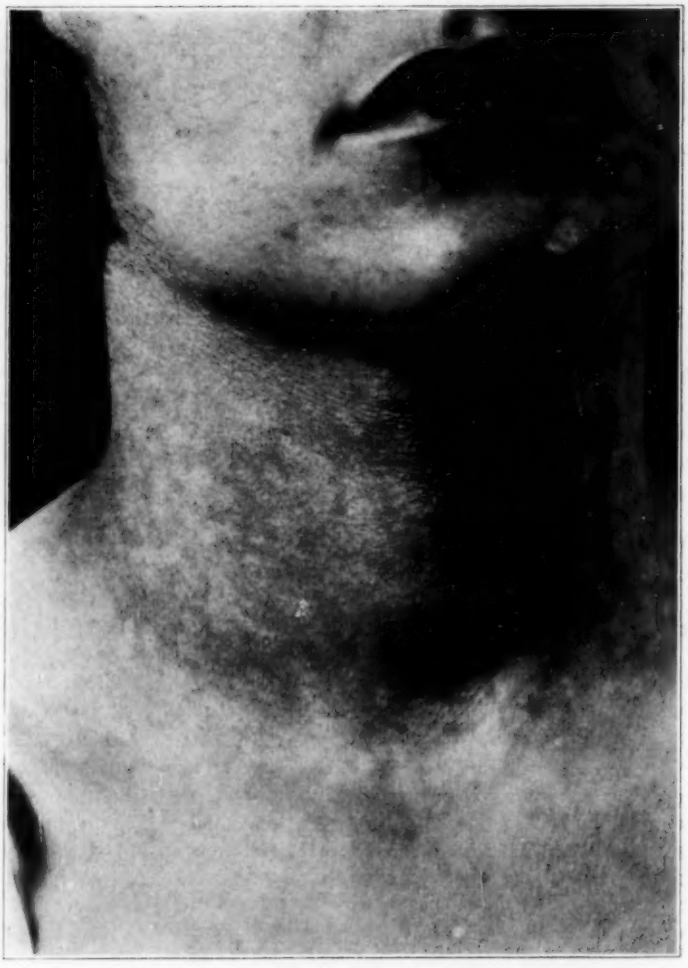

Fig. 1.—Lesions on the neck and upper part of the thorax.

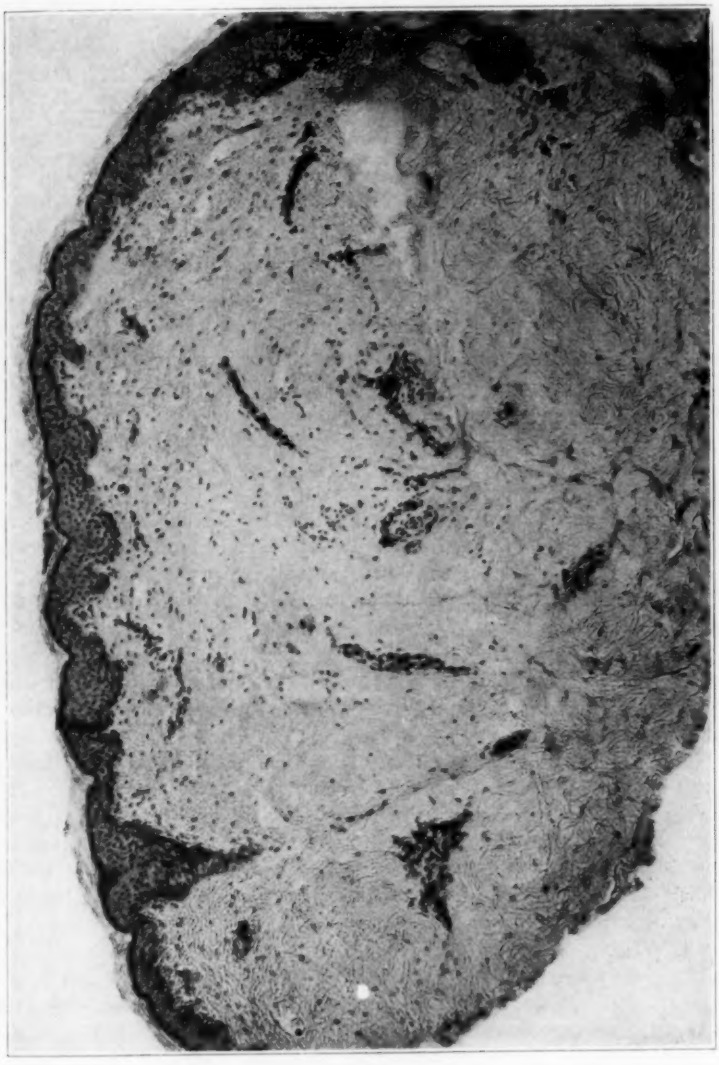

Fig. 2.—Photomicrograph of lesions.

Mayo Clinic and which I had observed there in Dr. O'Leary's service. This case was identical with the one reported here and with another observed in our clinic a few years ago. O'Leary mentioned the finding of epidermal atrophy in sections from his case, and he was surprised to hear that the lesion had healed entirely.

COMMENT

The condition here reported seems to be a clinical entity, and in the three cases which one of us (S. W. B.) has observed there were no physical abnormalities. Two of the patients were young Jewish girls. Careful clinical examination did not verify the preliminary impression of atrophy, and the histologic section from our case did not show definite atrophy, although Dr. O'Leary stated that epidermal atrophy was found in sections from one of his cases. Therapy for seborrheic dermatitis had no effect on the lesions in one case, and rather strong salicylic acid ointment did not improve the condition in another case. Perusal of the literature on atrophic dermatoses did not reveal reports of any similar case. The designation "pseudo-atrophoderma colli" is suggested for this condition.

DISCUSSION

Dr. F. J. Eichenlaub, Washington, D. C.: Several years ago we presented a case of exactly this type at the Baltimore and Washington Dermatologic Society. Since then two cases have been presented there.

At that time it was a new entity to us, and we could find no record of a similar case in the literature. The name presented seems to be appropriate.

Dr. Jeffrey C. Michael, Houston, Texas: Some years ago I saw a patient with this condition. Dr. O'Leary and his associates also studied her. Nothing could be found to account for the condition, and there was no response to a number of therapeutic measures. I saw her this spring for another disorder, and much to my surprise the pseudo-atrophoderma had disappeared without leaving a trace. I wrote Dr. O'Leary and received a letter expressing astonishment and a veiled doubt of the accuracy of my observation. I had the patient return and after close examination could find no trace of the previous condition. I might add that the disease disappeared while the patient was on a vegetarian diet, which she adopted of her own volition. In my case the disease lasted about eight years.

Dr. S. William Becker, Chicago: I had the pleasure of seeing the patient Dr. Michael mentioned at the Mayo Clinic. Since then I have seen two additional cases, the second of which we presented today. We have exhausted the literature and have been unable to find anything that corresponds to this case. The patient was presented at a meeting of the Chicago Dermatological Society, and many of those present said that they had seen the same condition but did not know what it was; we suggested the name "pseudo-atrophoderma colli."

ELASTIC TISSUE IN FETAL SKIN

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Elastic fibers are important constituents of connective tissue and are of importance in the skin in pathologic conditions as well as in the changes due to age which characterize this organ. The substance from which the fibers develop, the manner and the time of their appearance, and the local variations in their distribution are all interesting problems in embryology. I have examined sections of skin from several areas on fetuses from 3 months of age to full term, with particular attention to these problems, and I shall compare my results with those of previous observers. Before attempting to interpret my observations, it will be necessary to review the embryology of the skin as a whole and the development of connective tissues in general.

EMBRYOLOGY OF THE SKIN

General Features.—Any review of embryology of the skin must depend largely on Pinkus'[1a] summaries for Keibel and Mall's "Manual of Human Embryology" and for Jadassohn's "Handbuch."[1b] I have found no recent work in English to equal the former, and both books have been freely drawn on in the descriptions which follow.

The human skin results from the union of the epithelial material derived from ectoderm and the connective tissue originating from mesoderm.[2] The mesodermal somites in the course of their development produce, first, a primary sclerotome and, secondly, a dorsal lamella. The latter becomes the dermomyotome, and this in turn divides into an inner plate which produces muscle tissue and an outer plate which forms the connective tissue of the dermis (the skin plate of Remak). Some observers state that epithelial cells migrate into the dermis and remain to aid materially in its development. Part of the confusion

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1. Pinkus, F. (*a*) in Keibel and Mall: Manual of Human Embryology, Philadelphia, J. B. Lippincott Company, 1910, vol. 1; (*b*) Anatomie der Haut, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1926, vol. 1, p. 1.

2. Bardeen, C. R.: Musculature of the Body Wall in the Pig, Johns Hopkins Hosp. Rep. **9**:367, 1900. Williams, L. W.: The Somites of the Chick, Am. J. Anat. **11**:55, 1910. Butcher, E. O.: Development of the Somites in the White Rat, Am. J. Anat. **44**:381, 1929.

between these tissues is due to their mutual ability to produce fibrils. It has been felt that cultures of tissue might aid in the solution of the problem, and H. Pinkus [3] demonstrated that epithelial fibrils always arise within the cells and independently of the chondriosomes, whereas most observers agree that mitochondria are important factors in the production of the tonofibrils of fibroblasts. Frieboes [4] maintained that epidermal fibrils can be produced only by certain cells which are closely related to the connective tissue cells of the corium. Maximow,[5] on the other hand, stated that no mutual transformation between epithelium and connective tissue seems possible either normally or in cultures of the tissue.

Epidermis.—For convenience, I shall consider the epidermis as a cellular structure, but it must be remembered that some authors say that this is not the proper conception; they regard the cellular appearance as an artefact and hold that the epidermis is an undivided protoplasmic mass, and that what one regards as a cell body is merely the arrangement of the fiber basket around the nucleus.

In most early specimens there is a clear distinction between epidermis and corium, and the tissues are not mutually adherent. The epidermis probably begins as a single layer, but earliest observations show a two layer sheet consisting of a superficial series of flat cells (epiderm, periderm) and an inner series of larger, higher cells (the stratum germinativum). New cells form in the latter, move out and are cast off. At some time during the third month single cells appear between the two layers, later forming a complete line (stratum intermedium). Toward the end of fetal life the stratum intermedium which has become the stratum spinosum forms the principal constituent of the epidermis. The prickles of the cells are in reality epithelial fibers, whose origin from ectoplasm is generally admitted; they extend through a group of cells. Unna [6] pointed out that this fibril system of the epidermis resembles the elastic tissue system of the cutis, and it may be mentioned that these fibrils stain with resorcinol fuchsin.

In its earliest stages the skin is transparent, but grossly visible changes appear in the second and third fetal month. The first evidence of cornification is apparently not a true keratinization but consists of the retention of nucleated cells as a stratum corneum. Granules of

3. Pinkus, H.: Ueber Gewebekulturen menschlicher Epidermis, Arch. f. Dermat. u. Syph. **165**:53, 1932.

4. Frieboes, W.: Grundriss der Histopathologie der Hautkrankheiten, Leipzig, F. C. W. Vogel, 1924, p. 9.

5. Maximow, A. A.: Textbook of Histology, Philadelphia, W. B. Saunders Company, 1930.

6. Unna, P. G.: Zur feineren Anatomie der Haut, Berl. klin. Wchnschr. **58**:169 and 447, 1921.

keratohyalin may be observed in the skin of the face during the fourth month, but are still lacking in general at the fifth month, by which time trichohyalin has formed in the hair papillae. The granules of keratohyalin of the stratum granulosum are often first situated at the periphery of the cells, but later collect in the perinuclear region.

The stratum lucidum, which contains eleidin, has been found in abundance at 8 months, though it was not detected at the fifth. In the fetal period its chief importance is in the production of hair and nails.[7] The various constituents of the layers of keratin have been studied in detail, but they do not lie within the scope of this paper. In spite of extensive chemical studies it has been pointed out that no satisfactory explanation of the process of keratinization has ever been given.

Fat is present in the epidermis as early as the fifth month, and the stratum corneum is said to be richer in fat in the fetal period than in later life.

The development of pigment in the skin has been held by most authors to take place almost entirely in postnatal life. The pigment granules of the stratum germinativum probably arise from nuclear particles or from the mitochondria. Connective tissue cells are capable of producing pigment, and such cells appear in the corium in the fourth fetal month. Both the dendrite cells of the epidermis and the melanoblasts of the corium appear earlier in Japanese than in European fetuses; according to Iwashima,[8] they attain their highest development in from the sixth to the eighth fetal month and then decrease.

The inner surface of the epidermis is flat except in specialized regions (eyebrows), where changes occur in the second month. Streaking of the epidermis can be seen in the eleventh week as the ridges begin to develop on the palms and soles as Blaschko's gland ridges, which appear as linear thickening of the inner surface of the epidermis. It is from these ridges that the sweat glands are believed subsequently to arise. There are at first no corresponding elevations of the surface, but these appear about the eighteenth week on the tips of the fingers (superficial ridges of Heidenhain). Between the gland ridges on the inner surface a second series of thickenings then appears; no glands develop from these ridges (Blaschko's folds). On the outer surface corresponding to the folds are depressions (superficial sulci of Heidenhain). The ridges and folds are due to areas of increased epithelial proliferation.

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7. Unna, P. G.: Histologie und Entwicklungsgeschichte der menschlichen Oberhaut, Arch. f. mikr. Anat. **12**:665, 1876.

8. Iwashima, K.: Studien über das Melanin-Pigment in der Haut des Armes bei japanischen Embryonen, J. Orient. Med. **14**:52, 1931; abstr., Zentralbl. f. Haut.- u. Geschlechtskr. **40**:468, 1932.

Pinkus pointed out that there are two types of folds of the skin distinguished by the manner in which they are produced: (1) visceral folds and (2) folds due to movement. The finer ridges of the former type are those just described. Their arrangement is so exact that they may be used for individual identification, and their development is so constant that Hecht has devised a formula from which the sitting height throughout life may be calculated from the width of these folds. Of the folds produced by movement there are small, fine, triangular, rhomboidal and trapezoid arrangements over the entire skin as well as the larger folds at points of greater motion.

Development of the epidermal appendages takes place at different times and in different degrees in various areas. The point of earliest development is at the site of the eyebrows. The hair follicle, which has many specialized layers and sheaths, has been followed in detail, but for our purpose it is enough to know that the general appearance of hair papillae takes place early in the fourth month.

Reiss [9] recently reviewed the development of the sebaceous glands which have their earliest and greatest development in the nasolabial region and on the forehead. They appear first as buds from the upper portion of the hair papillae. He described two types, the glands with long and those with short ducts, but stated that they are usually mixed. He stated that in the ninth month the glands extend to their lowest point even into the subcutis, and in the tenth month they are again seen higher. He frequently observed cysts in the ducts of the glands in these two months. Individual variations are great.

According to the usual views, the sweat gland anlage appears first in the finger-tips in the fourth and fifth month, buds then growing in from the gland ridges, reaching their permanent depth and developing tortuous endings in the sixth month. In the latter part of the sixth month clefts appear in the lower portion as the beginning of a lumen; according to some observers these clefts are the result of active secretion by the gland cells. The lumen of the outer portion of the duct forms separately and unites later. Most, if not all, of the eccrine sweat glands are present at birth, though they are incompletely developed; their number and stage of development have been thoroughly studied by Becker.[10]

There has been some controversy over the origin of sweat glands, as to whether they appear directly from the gland ridges or indirectly from the hair papillae, but in many areas, particularly that of the palms and soles, they appear directly from the gland ridges. In some areas

9. Reiss, H.: Beitrag zur Histogenesis der Talgdrüsen und des Hornfettes beim menschlichen Fetus, Arch. f. Dermat. u. Syph. **166**:30, 1932.

10. Becker, J.: Ueber Haut und Schweissdrüsen bei Foeten und Neugeborenen, Ztschr. f. Kinderh. **30**:3, 1921.

the latter method is used, and Schiefferdecker has argued that glands developing directly from the gland ridges are all small or eccrine, and that those developing from the hair follicles are large or apocrine. Steiner [11] carefully followed the development of these large glands and of the hair and sebaceous glands from the primary epithelial bud of Marks, and stated that they later pull away from the bud and open directly on the surface. In these glands he observed a change in the nature of the cells at the end of the fifth month and a perceptible secretory activity at the beginning of the seventh month. According to Lüneberg, the apocrine glands are not present until the ninth year in the female and even later in the male.

The nature and even the existence of a basal membrane for the epidermis have been discussed for years,[12] and its presence has been denied by Unna [13] and Pinkus. At first the membrane was regarded as of epidermal origin, and it is now generally believed that in young human embryos the exoplasm of the basal epidermal cells forms the boundary between epidermis and corium. Some of the confusion in this field has been due to the use of inexact terminology, as pointed out by Steiner,[14] who believes that when the epidermis becomes multilayered it is capable of producing the basal exoplasm, but he defines a true basal membrane as a network of mesodermal fibers. He does not believe that a true homogeneous membrane is ever visible. Merkel,[15] however, stated that at the juncture of mesodermal and other tissues an amorphous membrane is formed, and that cell processes later extend into it.

Cutis.—Before undertaking such a discussion of the detailed development of the connective tissue portion of the skin as is necessary for an understanding of the development of elastic tissue, it will be best to enumerate briefly the major changes taking place in this structure in fetal life. In the earliest specimens there is a mesenchymal tissue rich in cells concerning the origin of which there is no unanimity of opinion. Pinkus stated that the epidermal origin of some of the early cells is agreed on, and he admitted that even later vital epithelial elements are capable of penetrating the corium, but he pointed out that these usually remain as definite epithelial structures (pigment cells and nevus cells).

11. Steiner, K.: Ueber die Entwicklung der grossen Schweissdrüsen beim Menschen, Ztschr. f. Anat. u. Entwcklngsgesch. **78**:83, 1926.

12. Cowdry, E. V.: Special Cytology, ed. 2, New York, Paul B. Hoeber, Inc., 1932, vol. 1, p. 3.

13. Unna, P. G., in von Ziemssen, H.: Handbook of Disease of the Skin, New York, William Wood & Company, 1885, p. 1.

14. Steiner, K.: Ueber die Entwicklung der Basalmembran des Hautepithels: II. Die Entwicklung der Basalmembran beim Menschen, Ztschr. f. Zellsforsch. u. mikr. Anat. **7**:577, 1928.

15. Merkel, F.: Betrachtungen über die Entwicklung des Bindegewebes, Anat. Hefte **38**:323, 1909.

Kromayer pointed out that even in adult tissue the papillary portion of the cutis reacts to all forces and pathologic changes with the epidermis rather than with the reticular cutis, and he and other observers insisted that even in late stages such a transformation is possible.

Before describing the development of the mesodermal portion of the skin, it may be well to enumerate the constituents of the adult tissue. There are of course the three main divisions of papillary and reticular corium and subcutaneous tissue. In addition to the blood and lymph vessels and nerves found in most tissues, there are certain characteristic structures. Subcutaneous tissue consists mainly of adipose tissue with connective tissue septums. The corium is made up of cells and fibers, the cells being fixed connective tissue cells and wandering cells: mast cells; ameboid and resting wandering cells, which appear in the first or second month, and plasma cells, which are present only after birth. The fixed cells are fibroblasts, some of which (the pigment cells) have special functions. The fibrous element of the corium consists of white collagenous fibers, yellow elastic fibers and lattice or reticulum fibrils (*Gitterfasern*).

A division of the cutis into corium and subcutaneous tissue may be seen in the third month, and the looser structure of the latter gradually becomes transformed into alveolar and finally adipose tissue. In a recent study of the weight of the skin and subcutaneous tissue in the fetus, Roe demonstrated that the weight of the skin has the same general characteristics of growth as the other organs, whereas the tela subcutanea shows a slower rate of growth in the early fetal months and a strikingly fast rate in the last month and a half.

The bundles of connective tissue of the cutis attain a parallel arrangement in the third month, and the cell-rich, fiber-poor tissue gradually becomes transformed into a cell-poor, fiber-rich tissue. It is apparently in relation to these changes that elastic tissue is developed, and the entire process is sometimes referred to as a "ripening" of the connective tissue. The parallel bands of collagenous fibers change direction several times during fetal life, apparently in relation to the formation of the larger folds of the skin. The division of the corium into papillary and reticular portions does not take place until the fourth month. The finer structure of the papillary portion allows the epidermis to adjust itself to the changing tension of the more rigid reticular portion. It is in the papillary corium that the fibers run in an apparently haphazard manner, whereas in the reticular corium the arrangement of the large and small fibers is nearly parallel. There are in general two networks of elastic fibers corresponding to these two systems of collagen fibers.

Lattice fibers can be distinguished from the other finer connective tissue fibrils by silver impregnation staining methods; they are most numerous in the finer structure of the papillary corium. Their origin

is disputed. They appear to rise from the endothelial cells of the small arterioles, but possibly they can also develop from other endothelial cells and fibroblasts.[16]

Steiner,[17] in some recent articles written after a study of a series of very small human fetuses, presented some rather revolutionary conceptions concerning the chronological relationship of different morphologic forms of epidermis and connective tissue. It is well known that local differences of structure occur in both fetal and adult skin, and Steiner pointed out that all structures which characterize different body areas are present at birth, with the exception of those concerned with secondary sex characters. In describing local differences in the early embryonal period, he found three types worthy of note: (1) a one-layered, flat epidermis found chiefly over the central nervous system and the anlage of the heart, with underlying connective tissue cell-poor and fiber-rich; (2) a prismatic, multilayered epidermis found chiefly over the face and the chin; with the underlying connective tissue always cell-rich and fiber-poor; (3) a cuboidal epidermis over the remainder of the embryo, with the underlying connective tissue midway between that of the first two. These findings are not in themselves revolutionary, for they conform quite well to observations by Häggqvist, but Steiner's deductions are quite different. Earlier workers had attempted to explain the flat epithelium of the chest as being due to rapid growth of underlying organs, but Steiner pointed out that it is flat even before the heart begins to grow. Since he regarded the mesoderm as a better gage of the stage of development than the epidermis, type I is described as the highest stage of development, and flattened epithelium is therefore regarded as the highest type of epidermal development. The reverse is held true of type II. In a study of older embryos Steiner observed that the areas covered by type I grow relatively smaller and eventually provide the areas of the eye, ear, nose and mouth. At the end of the second month, the mesoderm typical for these areas loses its early characteristics. Steiner's observations are in agreement with Fischel's opinion that the epidermis has a formative influence on the underlying connective tissue, and that cellular morphology is no indication of the degree of differentiation and of function.

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16. Way, S. C.: Lattice Fibers, Arch. Dermat. & Syph. **16**:25 (July) 1927.

17. Steiner, K.: Ueber die Entwicklung und Differenzierungsweise der menschlichen Haut: I. Ueber die frühembryonale Entwicklung der menschlichen Haut, Ztschr. f. Zellsforsch. u. mikr. Anat. **8**:691, 1929; II. Die embryonale Entwicklung der Hautgebiete mit frühzeitiger Mehrschichtigkeit des Epithels, Ztschr. d. ges. Anat. (Abt. 1) **93**:750, 1930; Ueber örtliche Verschiedenheiten des Aufbaues der Hautanlage junger menschlicher Embryonen, Arch. f. Dermat. u. Syph. **157**:446, 1929; Ueber Hautbezirke mit starker Zellvermehrung bei menschlichen Embryonen, ibid. **162**:577, 1931.

DEVELOPMENT OF CONNECTIVE TISSUE

Structure of Connective Tissue.—Any attempt to understand the development of the corium must be based on a knowledge of the development of connective tissue in general.[18] Probably all investigators agree that the corium is at first an amorphous, relatively undifferentiated structure in which many round, clear nuclei of mesenchymal type appear. There are several opinions as to the origin of these nuclei. The most approved opinion is that the outermost nuclei develop from ectoblast, at least in the earliest stage, and the inner from mesoblast. Because of the disagreement as to a cellular concept of this tissue, any description of further changes must be modified by individual opinion. The cellular theory as propounded by Schwann and developed by Virchow has been of the greatest aid to anatomic science, although detailed studies in recent years force one to question whether the corium is composed of individual cells with processes in the interspaces or whether one is dealing with a protoplasmic mass having no cell boundaries. In 1890, Heitzmann[19] expressed the opinion that the corium arises from undifferentiated tissue, that it becomes transformed to a vacuolated and finally reticular structure, and that fibroblasts are merely oblong and spindle masses of this tissue, the spaces undergoing a myxomatous, and the fibrillary net a collagenous, change. Since 1892, Bütschli[20] has argued that the usual structure of protoplasm is an emulsion, and that the netlike structure usually seen is an artefact. In 1902, Mall[21] stated that there are in the mesenchyme many individual cells which later unite to form a syncytium. In 1906, Spalteholz[22] maintained that even in adult tissue the fibers remain surrounded by cellular protoplasm. Maximow,[5] too, regarded adult connective tissue as consisting of individual elements of cells not forming a syncytium.

Attempts have been made to explain the situation by observing tissue cultures, and some of the best work favors the theory of a reticulum rather than a syncytium. Recent workers of considerable authority, however, regard such a theory as untenable and await a more satisfactory explanation.

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18. Bardeen, C. R.; Evans, H. M., et al.: Manual of Human Embryology, edited by F. Keibel and F. P. Mall, Philadelphia, J. B. Lippincott Company, 1910, vol. 1.

19. Heitzmann, L.: (*a*) Die Entwicklungsgeschichte der Lederhaut, Arch. f. Dermat. u. Syph. **22**:631, 1890; (*b*) Der feinere Bau der normalen Lederhaut, ibid. **22**:3, 1890.

20. Bütschli, quoted by Wilson, E. B., in Cowdry, E. V.: General Cytology, Chicago, University of Chicago Press, 1924.

21. Mall, F. P.: Development of Connective Tissues from the Connective Tissue Syncytium, Am. J. Anat. **1**:329, 1902.

22. Spalteholz, W.: Ueber die Beziehungen zwischen Bindegewebsfasern und Zellen, Verhandl. d. anat. Gesellsch. Rostock **20**:209, 1906

Origin of Connective Tissue Fibers.—The importance of a correct solution of the problem is apparent when one comes to a discussion of the development of connective tissue fibers and the question of intracellular or intercellular origin. Confusion is increased because authorities are unable to agree as to the limits of the cells or even as to their existence as limited masses. The simplest attitude is to assume that fibers develop directly as a differentiation of the ground substance or intercellular protoplasm, either with or without the influence of adjacent cells. Merkel's [15] comparison of fibers appearing in a manner much like the growth of crystals is an example of such a theory. Passarge,[23] who favored this form of development, summarized the literature to 1894 and was able to list such authorities as Henle, von Kölliker, Rabl,[24] Mall [25] and many others as holding a similar view. More recently, Schiefferdecker [26] entertained a similar belief, though he believed that the fibers arose under the influence of connective tissue cells. In a recent study of fetal elastic tissue, Hewer [27] saw this material appear first in the matrix of the cartilage apart from the nuclei. Also in a study of fetal elastic tissue, Geiger [28] never saw elastic fibers in close relation to a cell and believed that cellular activity took no part in their formation.

When one considers the intracellular origin of connective tissue fibers, one is confronted with a number of possibilities: The fibers are (*a*) a transformation of the entire cell, (*b*) a modification of the cell processes, (*c*) a sheath, (*d*) an excretion and (*e*) a transformation of protoplasm directly into a fibrillar stage or indirectly through a granular stage. A complete review of the literature merely allows one to tabulate names as favoring one of the processes enumerated, and I shall mention the authors of only a few of the most satisfactory theories.

Retterer described in detail the process in which he believed: The original tissue is a syncytium, partly of epithelial origin, which differentiates into a hyaloplasm (other authors call this ectoplasm) and a granular chromophilic portion surrounding the nuclei (endoplasm). The

23. Passarge, K.: Schwund und Regeneration des elastischen Gewebes der Haut, Dermat. Stud. **18**:2, 1894.

24. Rabl, C.: Ueber die Differenzierung des Mesoderms, Anat. Anz. **3**:654 and 667, 1888.

25. Mall, F. P.: Reticulated and Yellow Elastic Tissues, Anat. Anz. **3**:397, 1888.

26. Schiefferdecker, P.: Ueber das Auftreten der elastischen Fasern in der Tierreihe, Arch. f. mikr. Anat. **95**:134, 1921.

27. Hewer, E. E.: Significance of the Elastic Tissue of the Human Fetus, Quart. J. Exper. Physiol. **15**:113 (March) 1925.

28. Geiger, R.: Zur Frage der Entwicklung der elastischen Fasern in der Haut, Wien. med. Wchnschr. **76**:858, 1926; Zur Frage der Entwicklung der elastischen Fasern in der Haut, Arch. f. Dermat. u. Syph. **154**:108, 1927.

latter ultimately forms an extensive network with hyaloplasm in the meshes, and from the latter the fibers are differentiated.

Mall stated that processes extend from the endoplasm into the ectoplasm, where fibrillation becomes more complete.

Von Szily believed that the epithelial cells produce a fibrillar network (this would probably correspond to the reticulum) into the spaces of which the mesenchymal cells wander; fibers arise from the ectoplasm of these cells.

Recent observations on the development of fibers in tissue cultures favor the theory of the intercellular origin of both collagenous fibers [29] and elastic fibers.[30]

The entire question is far from settled, and Hueck made a sensible statement when he said that arguments as to the intercellular and intracellular origin of connective tissue fibers are superfluous if one remembers that connective tissue is made up of living cells, living ground substance and living fibers, and that collagen and elastin are related but chemically different end-products of a common morphologic process. No better conclusion can be drawn from the existing descriptions of the production of connective tissue fibers.

The end-products of differentiation of the mesenchyme of the corium are reticulum, collagen and elastin fibers, and fibroblasts, of which the reticulum appears to be the least highly differentiated and is regarded by some as "precollagenous" material.

Collagen and elastin are albuminoids and develop as biochemical differentiations of impregnation of the same basic structure. The differentiation is sufficient to permit differential staining to be applied. Fuss [31] held that the transformation to elastin is caused in part by asphyxia due to a decreasing supply of blood, but there is little proof for this theory. Frieboes believed that elastin and collagen can degenerate and regenerate to embryonic and intermediate stages.

The form which elastic tissue holds at birth is not maintained throughout life, for, in addition to changes in pathologic conditions, definite changes are produced by age. Since Hueck regarded these changes as developmental rather than degenerative processes, it may be well to consider them briefly. They are occasionally seen in early adult life and are found quite constantly in the fifth decade. Schmidt [32]

29. Maximow, A.: Development of Argyrophile and Collagenous Fibers in Tissue Cultures, Proc. Soc. Exper. Biol. & Med. **25**:439, 1928.

30. Bloom, W.: Studies on Fibers in Tissue Cultures: II. Development of Elastic Fibers, Arch. f. exper. Zellforsch. **9**:6, 1929.

31. Fuss, S.: Die Bildung der elastischen Fasern, Virchows Arch. f. path. Anat. **185**:1, 1906.

32. Schmidt, M. B.: Ueber die Altersveränderungen der elastischen Fasern in der Haut, Virchows Arch. f. path. Anat. **125**:239, 1891.

was the first accurately to describe them, and Unna [33] later classified them in detail, but the classification was rather artificial and was later abandoned. There are now two accepted types of degeneration based on morphologic changes: first, that due to an increase of fibers in crumpled bundles, often showing elastorrhexis and, second, that due to granular or lumpy amorphous changes.[34]

ELASTIN FIBERS

Characteristics of Elastin Fibers.—Because of the close biochemical and morphologic relationship of all connective tissue fibers, accurate descriptions have depended on advances in staining technic. Collagenous tissue stains best with acid fuchsin (van Gieson) or aniline blue (Mallory), whereas elastin stains best with acid orcein (Unna-Tänzer) or resorcinofuchsinol (Weigert), and reticulum by silver impregnation methods. The development of differential staining methods as applied to elastic tissue was reviewed by Krösing [35] in 1893 and by White [36] in 1910. The Weigert stain has been generally accepted by those working with fetal elastic tissue, although it is known that this tissue is present for some time before it may be demonstrated by stains. More accurate determinations could be carried out by chemical studies in which one encounters obvious difficulty. Although the Weigert stain is practically specific, it is taken up by mucin, colloid and bone formation in an early developmental stage.

Function of Elastin Fibers.—The original conception of the function of elastin fibers as an elastic framework for the skin is undergoing change. It is certain that the elastin system acts as a more or less rigid framework for the attachment of the muscular system of the skin, and Slawik [37] describes the earliest appearance of muscle fibers deep in the corium, with no attachment to the hair follicles. There is also a broader view of the function of elastic tissue which attains its greatest importance in the skin, lungs and blood vessels. Lindholm [38]

33. Unna, P. G.: Histopathologie der Hautkrankheiten, translated by Norman Walker, New York, The Macmillan Company, 1896.

34. Kissmeyer, A., and With, C.: Pathologic Changes in the Elastic Tissue of the Skin, Brit. J. Dermat. **34**:175, 1922.

35. Krösing, R.: Schwund und Regeneration des elastischen Gewebes der Haut, Dermat. Stud. **18**:55, 1894.

36. White, C. J.: The Elastic Tissue of the Skin, J. Cutan. Dis. **28**:163 and 217, 1910.

37. Slawik, E.: Eine besondere Kaltwirkung auf die Haut einzelner Säuglinge, Ztschr. f. Kinderh. **26**:1, 1920; Zur Histologie der glatten Muskulatur in der Haut des Neugeborenen, ibid. **27**:153, 1920.

38. Lindholm, E.: Ueber die Schwankungen in der Verteilung der elastischen Fasern, Frankfurt. Ztschr. f. Path. **42**:394, 1931.

suggested that parallel changes of a qualitative or quantitative nature might take place in the three systems, producing a "status hypelasticus."

It is certain that other constituents of the corium are also concerned in elasticity. Tomsa [39] held that the cement substance was important, but it is more likely that the collagenous tissue is the major factor. Sternberg [40] favored the latter concept and stated that extensibility is due to the arrangement of connective tissue fibers, and that overdistention is prevented by the elastic system. In postmortem studies of the aorta he showed that elasticity in the ordinary sense is greatest when the amount of elastic tissue is least.

General diminution of the elastic tissue of the skin is found in several conditions, notably cretinism and epidermolysis bullosa.[41]

Development of Elastin Fibers.—Elastic tissue appears late both ontogenetically and phylogenetically, and it is well known that it appears in other structures before it is visible in the skin. Probably the earliest site of this tissue is the aorta, and its earliest appearance in the skin is thought to be in relation to the vascular system. Hewer stated that the amount of elastic tissue in various portions of the vascular system at the time of birth is in proportion to the size of the vessels. As elastic tissue appears in the fetus, it is, at least in certain cases, in relation to the functional requirements of the organs. In the following discussion, unless definitely stated otherwise, reference is made to the elastic tissue of the skin or its vessels in human fetuses, and the age is expressed in lunar months.

In 1886, Robin,[42] without quoting an authority or describing studies, stated that elastic tissue begins to appear in human skin at the end of the second month.

In 1890, Heitzmann [19a] stated that most or all of the elastic tissue developed in the postnatal period.

In 1893, Krösing [35] expressed the belief that the elastic tissue developed between the seventh and the eighth fetal months in the form of granules which later formed fibrils or infiltrated fibers already present.

In 1902, Mall [21] found that the Weigert stain was practically negative during the sixth month, but during the seventh he observed homogeneous fibers parallel to the white collagenous fibers. There was a considerable increase in amount during the eighth month.

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39. Tomsa, quoted by Pinkus.[1a]

40. Sternberg, C.: Ueber die elastischen Fasern, Virchows Arch. f. path. Anat. **254**:656, 1925.

41. Engman, M. F., and Mook, W. H.: A Study of Some Cases of Epidermolysis Bullosa, J. Cutan. Dis. **24**:55, 1906.

42. Robin, C.: Elastique, in Dictionnaire encyclopédique des sciences médicales, ser. I, Paris, V. Masson & Cie, 1886, vol. 33, p. 80.

Spalteholz [22] gave a demonstration of elastic tissue in the truncus arteriosus of a 3 day chick embryo; this stimulated the search for earlier evidences of elastic tissue.

In 1925, Hewer [27] described elastic tissue in the aorta and larger vessels, and fine elastic fibers in the skin just below the epidermis at from 6 to 8 weeks. At 4 months she observed a membrane around the hair follicles continuous with the lamina between the dermis and the epidermis.

It is generally accepted that elastic tissue develops in relation to, and in conjunction with, collagenous tissue. It has already been mentioned that its first appearance is in relation to the vascular system, and some authors feel that its appearance proceeds from below upward in the cutis.

In 1910, White [36] studied the variations and distribution of elastic tissue in various body areas in adults. He found relatively large amounts on the abdomen and palms, somewhat less on the heels and considerably smaller amounts on the scalp, thighs, axillae and chest.

In a comprehensive discussion of elastic tissue with particular reference to phylogenetic studies, Schiefferdecker [26] emphasized that in man the fibers pass through three stages: preelastic, elastic and postelastic. The last stage is a product of the changes due to age. Schiefferdecker disapproved of the term preelastic, preferring the more descriptive terms chromophile and chromophobe in reference to developmental changes, since these terms can be used in a similar manner in studies of collagen fibers. He maintained that such chromophobe or preelastic changes are also observed in phylogenetic studies in some organisms (mollusks) which never develop true elastic fibers. There are also intermediate stages in which the fibers take the stain to a slight degree and not in a definitely specific manner. In rather brief studies of human fetuses he observed elastic tissue in the intima of an artery of the cheek of a 4 month fetus. Although only a small amount was present in the same area of a 5 month fetus, it was found well developed in the abdominal wall.

In 1930, in a study of new-born infants, Weiss [43] found that the elastic fibers were far less in number and in strength in the soles than in other areas. He also noticed none or few around the hair or the glands in premature infants.

Schiefferdecker said that there was no variation between the sexes. In rather careful counts of the number of elastic fibers in the stratum reticulatum, Lindholm [38] found a higher average in the female than

43. Weiss, F.: Histologische Untersuchungen an der Haut von debilen, neugeborenen, eutropischen, und ernährungsgestörten Säuglingen, Jahrb. f. Kinderh. **135**:184 and 272, 1930.

in the male although individual variations were so great that the smallest count in each age group was found to be in a female subject. Numerical counts in such a small series are probably not highly significant; there was, however, a definitely higher tendency in infants of both sexes as compared with older children and adults. Lindholm also found considerable variations on different areas of the body.

In 1926, Geiger [28] reported the most extensive observations on elastic tissue in fetal skin when he described the results of studies of thirty fetuses, aged from 3 to 7 months, ten of which were between 6 and 35 cm. in length. He attempted to answer the three obvious questions as to when, where and how elastic tissue develops. He recognized that it appears at different times in different areas, probably as a response to different demands of tissue and location, but in most cases he limited his observations to tissue from the plantar areas. In fetuses of 6, 7 and 13 cm. he found no elastin in the skin. It was present in vessels of the skin at 3.8 months, and coarse granules were seen deep in the corium at 4.4 months. Fine fibers taking the specific stain were observed at 5.3 months. In the plantar area of a 6 month fetus it was well formed, whereas in the cheeks of the same fetus it was present only in the vessels and there was very little in the stratum reticulatum. At 6.6 months a few fibers were present in the papillae.

Geiger stated that he had never seen elastic structures in the cells or in close relationship with them but always in the ground substance, and it was his impression that elastic tissue develops with no dependence on, or relationship to, activity or function of the cells; it appears first as granules which later become arranged as fibers. He noticed the appearance of elastin as an accompaniment of the ripening process, and stated that the process proceeds from below upward in the skin.

PRESENT STUDY

Material and Method.—I am reporting observations on tissue removed from thirty-five fetuses, varying in length from 3.3 to 60 cm., eighteen being from 2.5 to 7 lunar months of age. Estimations of age [44] were made from the crown-heel length, using the formula: $T = \left(\frac{L}{28} + 1.25\right)^2 + 0.74$. For the third month the following formula was used: $T = 2.134 + 0.1L + 0.0011L.^2$

Two pieces of tissue were taken from each of four areas of each fetus (forehead, cheek, abdomen and plantar surface) with fixation in Zenker's solution and 70 per cent alcohol respectively. Four stains were used on tissue from each area: hematoxylin-eosin, van Gieson, Weigert and an azocarmine modification of Mallory's aniline blue. On several of the early specimens the acid orcein stain was also used. Since it is recognized that tissues which have been fixed for long periods are not suitable for these studies, only fresh specimens were used.

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44. Scammon, R. E., and Calkins, L. A.: Growth of the Human Body in the Prenatal Period, Minneapolis, University of Minnesota Press, 1929.

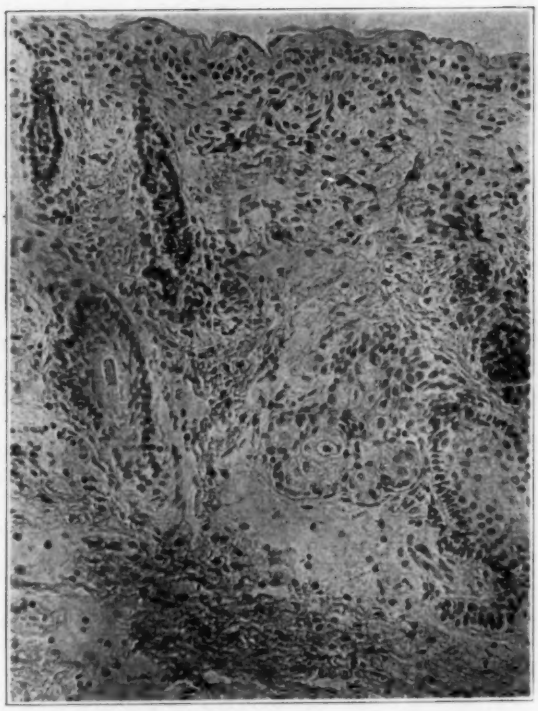

Fig. 1.—Specimen from the cheek of a fetus of 5.3 months showing the early appearance of elastin fibers, chiefly in the lower portion of the cutis (Weigert stain).

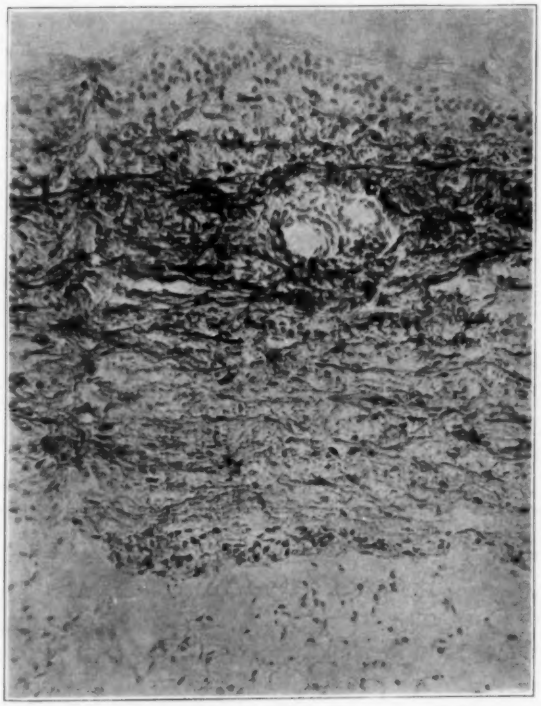

Fig. 2.—Specimen from the abdomen of a fetus of 8.9 months showing the parallel arrangement of fibers and the distribution similar to that found in fully developed skin (Weigert stain).

Fig. 3.—Section from the foot of a fetus of 3.3 months showing large and small fibers in the upper corium (azocarmine stain).

Results with Weigert Stain

Length, Cm.	Age, Lunar Months	Vessels	Cheek	Forehead	Abdomen	Foot, Plantar Surface	
3.3	2.6	..	..	..	0	+	
4.0	2.7	..	..	+	+	+	
10.0	3.3	0	0	..	(Gray)	(Gray)	
15.0	3.9	+	+	0	0	0	
20.0	4.4	0	0	0	(Gray)	(Gray)	
23.0	5.0	0	0	(Gray)	(Gray)	(Gray)	
24.0	5.2	+	Granules	0	0	Granules	
25.0	5.3	+	+	+	+	+	
27.5	5.7	+	+	+	+	+	Number of fibers is diminishing
28.0	5.8	+	+	+	+	+	
	5.8	+	+	+	+	+	
29.0	6.0	+	Granules	Granules	Granules	+	
32.0	6.4	+	+	+	+	+	
33.0	6.6	+	+	+	+	+	Number of fibers is increasing
33.0	6.6	+	+	+	+	+	
	6.7	+	+	+	+	+	

Observations.—In describing the earliest appearance of elastic tissue in the skin it is almost impossible to avoid the use of the term granular to describe the fine particles of elastin the form of which has been a point of argument for years. In the following observations and

the accompanying table, I use the word as a descriptive term and not in a strict morphologic sense. My interpretation of the appearance will be given later.

2.6 Months:

Thoraco-abdominal

Azocarmine: Fairly parallel blue fibers were present which on close examination appeared to be the cell membranes.

Weigert: No elastin visible.

Plantar

Azocarmine: The appearance was similar to that of previous specimen.

Weigert: In some areas a black stain was taken in a manner similar to the azocarmine.

2.7 Months:

Forehead

Azocarmine: The stain was not so definite as in the previous specimen but a very definite blue basement membrane was present.

Weigert: The basement membrane was stained.

Thoraco-abdominal

Azocarmine: The corium did not stain well, although there were a number of blue fibers in the connective tissue around the anlage of a rib.

Weigert: Only the aforementioned fibers were stained.

Plantar

Both azocarmine and Weigert stain colored the basement membrane and also what appeared to be the cell membranes. The blue stain was well taken in the vessel walls.

3.3 Months:

Cheek

Azocarmine: The basement membrane and cell processes, as well as what appeared to be fibers, were stained.

Van Gieson: A similar but not a specific color change was present.

Weigert: No elastin was seen.

Forehead

Azocarmine: There were very few blue fibers.

Abdominal

Azocarmine: The blue fibers were more coarse and much more distinct.

Weigert: The basement membrane was only suggested; the blood vessels did not take the stain; there were dark granules at the level of the line between the cutis and subcutis and lower in the muscle sheath.

Plantar

Azocarmine: Again a blue basement membrane and a granular appearance similar to that shown by the elastic stain were observed.

Weigert: There were granules throughout the cutis but mostly in the upper half; the staining was not specific and had the appearance of degenerating tissue.

3.9 Months:

Cheek

Azocarmine: The vascular wall took the blue stain nicely, as did the fibers throughout the cutis; the fibers of the lower part of the corium were larger and more nearly parallel than the aforementioned ones.

Weigert: The basement membrane, some fine fibers in the lower part of the corium and the vessel walls took the stain only faintly.

Forehead

Azocarmine: The appearance was similar to that of the previous specimen.

Weigert: No fibers were present in the cutis; otherwise the results were similar to those for the cheek.

Abdominal

Azocarmine: The results were similar to those for the cheek.

Weigert: No reaction was obtained.

Plantar

Azocarmine: What appeared to be fine blue fibers could have been interpreted as cell membranes.

Weigert: No reaction was obtained.

4.4 Months:

Cheek

Azocarmine: The results were similar to those in the 3.9 month fetus.

Van Gieson: Faint color changes were present in the lower part of the corium.

Weigert: No reaction was obtained.

Forehead

Azocarmine: The results were similar to those for the cheek.

Weigert: Fine black granules and fibers were present in the walls of the vessels of the cutis.

Abdominal

Azocarmine: The results were similar to those for the forehead.

Van Gieson: A faint change was observed.

Weigert: No definite results were obtained, but there were grayish granules as in the fetus of 3.3 months.

Plantar

Azocarmine: There were no definite membranes; there were blue fibers throughout the cutis.

Van Gieson: There was no color change.

Weigert: There were grayish-black granules at the level of the vessels in the lowest part of the cutis.

5.0 Months:

Cheek

Azocarmine: There were many fairly parallel blue fibers of medium size; there was a definite basement membrane.

Weigert: No reaction was observed.

Forehead

Azocarmine: The reaction was similar to that for the cheek.

Van Gieson: A faint orange color was obtained.

Weigert: The same grayish granules and fibers as in earlier specimens were present. Deeper vessels showed a definite elastic membrane.

Abdominal

Azocarmine: The reaction was similar to that for the forehead.

Van Gieson: The reaction was similar to that for the forehead.

Weigert: The reaction was similar to that for the forehead.

Plantar

The reaction was similar to that for the forehead in all stains. A blood vessel of an intermuscular septum showed definite black fibers.

5.2 Months:

Cheek

Weigert: The reaction resembled that of the fetus of 5 months, but there were definite black granules and occasional small fibers in the blood vessels of the corium and occasional black granules in the corium itself.

Forehead

The blood vessels in the musculature showed a complete elastic lamina; the vessels of the corium were like those of the cheek; there were no granules or fibers in the corium proper.

Abdominal

The results were similar to those for the forehead.

Plantar

The blood vessels were like those in the other areas, and there were definite black granules in the corium.

5.3 Months:

Cheek

In the lowest part of the corium there were definite black granules and fibers; in the middle portion, black granules and very few short fibers; in the upper part of the corium, black granules and the fibers only gray as in earlier specimens.

Forehead

The reaction was similar to that for the cheek, in smaller amount.

Abdominal

There were only a very few definite fibers outside the blood vessels and not even definite granules in the upper part of the corium.

Plantar

The results were similar to those for the forehead.

5.7 Months:

In all specimens the amount of definitely black tissue was less than in the fetus for 5.3 months.

5.8 Months:

The reaction was even less than in the fetus of 5.7 months. There was a marked difference in the amount of elastic tissue in the vessels of the musculature, the arteries having considerably more color than the veins. There were few definite black fibers.

6.0 Months:

Cheek

There were no definite black fibers, but there were definite granules; in this and subsequent specimens the collagen fibers took a pale rose-gray to gray stain.

Forehead

Black granules were present, but only gray fibers; there were definite elastic fibers in the blood vessels.

Abdominal

There were no definite fibers outside the vessels.

Plantar

There were occasional black granules and fibers in the corium.

6.4 Months:

In all areas there were black granules and occasional fibers in the lower part of the corium, with only gray granules higher; the elastic of the blood vessels was well stained.

6.6 Months:

The results were similar to those in the fetus of 6.4 months.

There were definite black fibers throughout the corium in all specimens, but fewer in the plantar area.

From 6 months on, the specimens treated with the van Gieson stain showed only a faint yellow, and in many areas those treated with azocarmine showed only a pale blue. The azocarmine stain again began to improve from this point (6.6 months).

6.7 Months:

There were more black fibers than before.

7.1 Months:

Cheek

The elastic fibers showed a much more adult type of arrangement than before; they were stretched out between the large collagen fibers of the lower part of the corium and were smaller and more independent above.

Forehead

The reaction was perhaps not so great as in the cheek.

Abdominal

The reaction was almost like that for the forehead.

Plantar

The reaction was definitely less.

7.3 Months:

Cheek

There were few if any fibers outside the vessels.

Forehead

The reaction was like that for the cheek.

Abdominal

Fibers were present only in the lower and middle portions of the corium.

Plantar

Fibers were present in only the lower portion of the corium.

From this point on there were a gradual increase in the amount of elastin tissue and an approach to the adult arrangement of fibers; the van Gieson stains became much more colorful and the azocarmine stains heavier; in fact, they were too heavy to be of value in studies of the reticular corium.

The amount of elastic tissue in the cheeks and the forehead was about equal, with somewhat less in the abdominal and definitely less in the plantar specimens. Even at 8.9 months there were few fibers in

the papillary corium of the plantar area. It was difficult to compare the amount of elastic tissue in the specimens from the abdomen, cheeks and forehead because of the different arrangement due to the appendages. At and beyond term it was about equal in these three areas, although there was much less in the plantar area.

COMMENT

In reviewing the observations made, it is obvious that with each of the connective tissue stains employed the reaction passed through distinct cycles during the fetal period. I shall try to analyze the cycles and determine their significance.

In studying the sections stained with azocarmine one was impressed in the earlier specimens with the appearance of a basement membrane and a staining of the cell membrane and process. Somewhat later definite fibers could be distinguished. In the seventh month there was a period during which the fibers did not appear to take the blue color so well, but following this period there was a definite progress toward the adult appearance.

The van Gieson stain passed through a similar, quite parallel series of stages. At no time in the first two thirds of fetal life was this stain as satisfactory as the azocarmine stain.

In the third, fourth and fifth months of fetal life there were times when the elastic stain was taken up rather definitely by the structures which stain blue with the azocarmine stain (the basement membrane, the vascular walls and a few small fibers low in the cutis), but at no time was the staining as definite as with the blue. Then there came a short period in which no structures in the skin were stained with the elastic stain. I first observed definitely black granules and fibers in the vascular wall of the forehead in a fetus of 4.4 months. In a specimen of 5 months I could find no such material, but at 5.2 months and constantly thereafter there were definitely black fibers in the vessel walls in all areas. The amount of tissue stained was always greater in the vessels of the musculature than in those of the cutis.

In a specimen of 5 months I observed dark gray granules in the cutis, but not until 5.2 months and constantly thereafter were the granules definitely black. In the specimen of 5.2 months there were definite black granules in the corium of the cheek and in the plantar areas, and in the specimen of 5.3 months, there were distinct fibers in all the areas, most of them occurring in the cheeks and the fewest in the abdominal areas. There was then a period in the latter part of the sixth month when there were considerably fewer fibers than before. An increase was again noted toward the end of the seventh month, and at 7.1 months fibers were observed the structure and arrangement of which were markedly similar to those of adult tissue. It was during

this increase in the number of the fibers during the last three months of fetal life that the plantar area lagged far behind.

I do not know how to interpret my observation as to the presence of a basal membrane. Certainly at the point where one would expect to find a basal membrane the blue of the azocarmine stain and the black of the Weigert stain were taken up in the early fetuses. This was not true in the older fetuses. I believe that it was this appearance that Hewer described in her specimens of from 6 to 8 weeks. In several specimens from areas in which the epidermis was pulled away from the corium in preparing the sections the membrane was retained with the structure of the corium.

Although the basal membrane, the cells of the cutis and the vascular walls in some of the early specimens take the Weigert stain in a specific manner, I am not willing to regard them as elastin structures. I believe that the first appearance of true elastin in the skin demonstrable by present tinctorial methods is in the vessels in the fifth month (4.4 months) and in the corium proper a little later (5.2 months). I am unable to explain the decrease in the number of fibers which takes place in the sixth month.

It is not at all likely that this decrease or any of the changes just described were due to technical errors in staining, because in all cases in which this might be suspected the deeper structures were examined, and blood vessels were found in which the stain was well taken. Many of the sections were restained and examined immediately.

Although I do not feel prepared to enter into a discussion of the intercellular or intracellular origin of the granular or fibrillar development of elastic fibers, it is my opinion from observation of these tissues that connective tissue fibers develop from cellular structures, and that elastin appears in the form of fibers. Gray granules were visible in many of my sections, but I prefer to regard them as a stage in the development of collagenous fibers. The earliest definitely black granules which were apparent I believe can be demonstrated to be short, fine fibers.

SUMMARY

1. The embryology of the skin is reviewed briefly, with specific references to only the most recent literature.

2. The development of connective tissues is reviewed, with particular reference to their origin. From a study of the literature one is unable to draw definite conclusions as to intercellular and intracellular development of connective tissue fibers.

3. In reviewing the function and characteristics of elastin fibers, one is impressed with the recent tendency to regard the so-called elastic fibers as a rigid network and the collagenous fibers as the elastic structure of the corium.

4. Previous studies of the development of the elastin fibers in fetal skin are reviewed, and it is found that other observers have not agreed as to the time of the appearance of the fibers. Although local variations in the amount of elastic tissue are recognized, no attempts have been made to determine the extent of such variations in fetal skin.

5. I examined tissue from thirty-five fetuses with particular reference to the earliest appearance of elastic fibers in the skin. As early as the third month there was a substance present in connective tissue cells and in their processes, in vessel walls and at the boundary between the cutis and the epidermis which accepted the resorcinol fuchsin stain in a specific manner. I do not regard this substance as elastin. There was definite evidence of elastic fibers in the blood vessels of the cutis in the fifth month, and in the corium proper early in the sixth month. In the eighth, ninth and tenth months a difference was noted between the relatively smaller number of elastic fibers in the plantar areas as compared with the greater number in the specimens from the abdomen, forehead and cheeks. There is a period in the sixth and seventh months when there are apparently fewer elastic fibers than in earlier specimens.

FRANÇOIS-XAVIER SWEDIAUR *

1748-1824

JOHN E. LANE, M.D.†
NEW HAVEN, CONN.

Swediaur's "Treatise on Syphilis" gave him an international reputation during his life, and it still occupies a modest place among the historically important books on syphilis. Proksch says that although Swediaur is far inferior to Astruc in the extent of his reading and in the accuracy of his method of handling the material presented, his work is the best that had been written since that of Astruc and far excels it in practical knowledge. His career is of interest for the reason that he did his work and acquired his reputation without occupying any position in a school or hospital. As Proksch says, he did everything that a physician could do, in a practice which was for the most part ambulatory.

François Xavier Swediaur was born in Steyt, Austria, on March 24, 1748. His father, of Swedish descent, had bought land and established himself in Austria by introducing the cultivation of turnips on a large scale without interruption or rotation of crops. He must have been a man of culture for he instructed his son himself, teaching him, among other things, Greek and Latin. This early instruction gave good results, for later Swediaur became a proficient linguist. His mother died when he was 5 years old. At 13 he was sent away to school, where he was well grounded in philosophy, physics and mathematics. After finishing school he went to Vienna to study medicine. Van Swieten was the leading figure of the medical school at that time. He was known for his investigations on corrosive sublimate (liquor van Swieten) which brought about its popularity in the treatment of syphilis. Swediaur made a critical study of these investigations some years later. Van Swieten died the year of Swediaur's graduation. Swediaur's clinical work was carried on chiefly under the direction of Anton de Haen, another prominent figure who is described by Garrison as "the rabid defender of belief in witchcraft, who wrote a treatise on hospital therapeutics in fifteen volumes, maintained the supremacy of clinical experience over physiologic experimentation, used the clinical ther-

† Dr. Lane died Oct. 17, 1933.

* François-Xavier Swediaur was the form of the name finally adopted by Swediaur when he permanently settled in France and became a French citizen. He was originally named Franz Xaver Schwediauer, and various other spellings are found: Swediauer, Swediár, Swedi'r, Swédiaur, Swediaür, and, in Italian, Svediaur.

mometer at the bedside, first noted that there is an elevation of temperature in the algid stage of ague and employed electro-therapy."

While in the medical school, Swediaur must have become acquainted with John Ingenhousz who had practiced medicine in Holland and then in England. In 1768 he had been sent to Vienna by Sir John Pringle to inoculate members of the Austrian royal family with smallpox; he stayed on to quarrel with de Haen till 1779, when he returned to London.

Swediaur finished his medical course in 1772. His thesis was a description of the anatomic preparations and surgical instruments in the collection of the school.

While he attended the medical school Swediaur spent much time in the study of modern languages and, after graduation, eager for knowledge and well equipped for its acquisition, he started on a trip to numerous seats of learning in Europe. In 1775 he arrived at London. He soon made friends among influential physicians: Milman, who was made physician to the king in 1785 and was later president of the Royal College of Physicians, and J. Mervin Nooth, had been fellow students of his in Vienna; Ingenhousz, who introduced him to Sir John Pringle, a friend of van Swieten's who had studied at Leyden, was physician to the king in 1774 and president of the Royal Society. Pringle introduced Swediaur to Heberden, George Fordyce and Richard Warren. Warren was the physician who had the largest income from practice, £9,000 a year, that had been known up to that time. He left more than £ 150,000 to his family. With such friends it is not surprising that Swediaur soon acquired a large practice and a good clientele. He is said to have had five foreign ambassadors or ministers as patients at one time.

Swediaur did not confine his activities to building up a practice. Shortly after his arrival in London, together with Milman and Nooth, he started to repeat some of van Swieten's experiments on the use of corrosive sublimate in syphilis and of Stoerck's on hemlock in the treatment of cancer. The first fruit of these efforts was a small memoir in which were related many facts exposing "the absurdity, or worse, of hemlock as a remedy for the cure of cancer proposed by Stoerck." The results of the experiments were published later in the *Foreign Medical Review* which was edited by Swediaur. After two years, in 1781, this journal was succeeded by the *London Medical Journal* which was edited by Dr. Simmons, assisted by Swediaur.[1]

In 1776 he translated into German a book by Hugh Smith on medical practice. In 1777 he translated into German Fordyce's "Elements of Agriculture" and Cullen's "First Lines of the Practice of Physic," and also published in Vienna a two volume work on hospital treatment, the first volume giving the treatment used in London hospitals, the second

1. I have been unable to verify these statements from the journals mentioned.

that used in those of Vienna. In 1783 he wrote "An Account of Ambergrise" which was presented to the Royal Society by Sir Joseph Banks and was published in the Philosophical Transactions. The same year he also translated into English Torbern Bergmann's "Essay on the Usefulness of Chemistry."

Meanwhile Swediaur had been to Edinburgh to see Cullen, perhaps attracted by his well known kindness in assisting others. Bazzoni gives a brief account of this visit.

> A pale youth, made thin by long vigils passed in study, presented himself in the office of Cullen, the inexorable revolutionist of medicine in the last century. That youth, half scared, held under his arm some manuscrips which he left with the distinguished Scot as he wished to have his opinion of them. Cullen read them and was so impressed that he told his pupils in one of his lectures: "my old age is suffused with the most pleasing consolation of being able to be the first to announce to science and to you the appearance of a mind destined to give great stimulus to medical science."
>
> The prophesy was realized. The youth was Swediaur, the manuscript in his hand was his work "Practical Observations on the More Obstinate and Inveterate Venereal Complaints."

This work appeared in 1784 in English—good English—in spite of his statement in the preface that he had been disappointed in not getting some one to correct it, and that "being a foreigner, it will not be expected that the author could write the language with elegance or strict propriety."

In 1786 he translated from the Latin into English Milman's "Animadversions on the Nature and on the Cure of Dropsy."

In the same year he published his "Philosophical Dictionary, or the Opinions of Modern Philosophers on Metaphysical, Moral, and Political Subjects." This work comprised four volumes. Its nature and the reception it received are best shown by the following review which appeared in *Monthly Review*:

> This publication resembles those compilements which lately thickened upon us under the name of *Beauties;* and instead of calling it "The Philosophical Dictionary," it should have been denominated *The Beauties of Modern Infidelity.*
>
> Infidelity, like an epic poem or tragedy, hath its beginning, middle and end. There is a regular graduation in it from its lowest stages to its highest consummation; and when it begins by carping at miracles, it seldom leaves off till it hath robbed man of an *immortal soul,* and consoled him for the loss by telling him *his remedy is at hand,* either in the pistol, the cup, or the cord.
>
> If any one needs encouragement in those glorious studies which have a progress and termination so devoutly to be wished, he may be amply furnished in these volumes; where the names of Bolinbroke, Voltaire, Hume, Helvetius, Rousseau, etc., appear like stars of the first magnitude to throw a lustre on the page and gladden the heart of the bewildered travelers in the dark and dreary wilderness of metaphysics!

In 1789 he published a pamphlet, "Arguments on the Abolition of the Laws Prohibiting the Free Importation of Rock Salt into Scotland," and an article in a German periodical on "The Venereal Complaint Which Recently Broke Out in Canada." He had added a chapter on this same subject to the third edition of his "Practical Observations" published in 1788.

This disease had attracted much attention since the time of its appearance about 1770. It was called "La maladie de la Baie de St. Paul" from the place of its origin, a few miles up the river from Mal Baie, now called Murray Bay. The disease was probably syphilis; an

FRANÇOIS-XAVIER SWEDIAUR
1748–1824

interesting account of its appearance and progress was given a few years ago by the Honorable Justice W. R. Riddell.

In 1789 Swediaur left England and settled in Paris, where he remained the rest of his life. I have found nothing to indicate the reason for the change except the statements that he did not like the English climate, and that he met Danton in London and later became his friend in Paris. As he joined the Jacobins soon after his arrival, it is probable that sympathy with the French Revolution and not climate was the reason for his going to France. This impression is supported by the statement of an unknown contemporary that, "melancholy, he had a mind that was impetuous and enthusiastic even to folly; simple in his habits, he was a man of nature; wedded to science, he never was unfaithful even when it was necessary to struggle with want."

Aside from the fact that he acquired a large practice, little information has been found in regard to his life in Paris. The titles of his less important writings, not already referred to, will be found in the appended list.

Bazzoni states that in addition to these Swediaur wrote a book on foods (*gli alimenti*) which was translated into several languages, and that he disinterred from the dust Luigi Cornaro's "Trattato della vita sobria," the well known work on the simple life, first published in 1558 and still appearing in new editions and translations. In spite of a rather extended search, I have been unable to find any other reference to these writings.

I owe to the kindness of Dr. W. W. Francis the following account of Swediaur's death from Jonas Asplin's manuscript diary in the Osler Library.

Death of
of
Dr. Swediaur
⟨Aout⟩ 28 ⟨1824⟩

Death of my old friend Dr. Swediaur.

Received a line from Rev. Mr. Foster to say our poor friend Swediaur departed this life about ⟨ ⟩ o'clock last night.

He was born at Vienna 1748
Died at Paris——1824
} Aged 76

Mrs. Ramus called—she sets out today for Hieres—Rev. Mr. Foster called—engaged to meet him at 4. at Swediaurs house—which I did & examined the body & found one large stone in the bladder—seven small ones & some still smaller—the Bladder universally diseased inflamed & thickened & externally united to everything it touched—It was largely distended with urine & the prostate much enlarged.

This has been the cause of his indisposition for the last two years—& which has killed him—he never dreamed of the existence of Stone & attributed the difficulty he experienced in making water & latterly the extreme pain, to an irritability of the Bladder to which old age is extremely subject—

He had no other complaint—

Sent for to Passy to Colonel Frasers child. Very dusty—home by 8.

Swediaur's reputation rests on his two books on syphilis. The first, "Practical Observations on the More Obstinate and Inveterate Venereal Complaints," which was published in London and Edinburgh in 1784, ran through three authorized and one pirated English edition and one American edition and was translated into French, German and Italian. The second book, "Traité complet sur les symptômes, les effets, la nature et le traitément des maladies syphilitiques," was published in Paris in 1798 and ran through seven French editions. The third edition

was pirated and published as the fourth edition. Swediaur called attention to the fact that all copies of his authorized fourth edition bore his signature.[2] It was translated into German and Dutch. There were two Italian and two English translations, one of which was published in Philadelphia.

While the first book was published in English and the second, with a different title, in French, the two are really the same book, the second being a revised and enlarged edition of the first.

Swediaur made no great discovery in his chosen field. As he says in his preface, he began to make and to collect observations on syphilis in 1770 (two years before he finished his medical course) and continued to develop his subject as fast as his knowledge grew and new publications appeared. He visited the chief medical centers and observed the work of leading syphilologists. The book is a text-book giving the views of medical leaders with criticisms of them and a full statement of his own experiences and conclusions. Proksch was probably right in saying that it was the best book on the subject that had appeared for a long time. Swediaur's interest was practical, and he especially strove to introduce the best methods of treatment. "My purpose was to be useful in instituting some progress in this branch of treatment. I flatter myself not only on having collected everything that the most enlightened physicians have left us relating to the treatment of these diseases, but I even hope that my readers will find few chapters which do not contain either some new views or some important truths on the nature of these diseases as well as on their cure." [3]

Swediaur rejected the name of gonorrhea because its meaning (fluxus seminis) conveyed a wrong impression of the nature of the disease; he introduced the term blennorrhagia for the acute and blennorrhea for the chronic disease.

While the word syphilis was infrequently used by earlier writers (Séverin, 1632, Turner, 1717, and some others in the latter part of the eighteenth century), the designation venereal disease was the commoner term. Swediaur used this in his first book but in his "Traité" he prefers the use of the word syphilis for the excellent reason that "several other diseases—may be caused by venereal contact—without being syphilis or without having any relation to this specific virus."

Like all other physicians of his time, Swediaur was interested in the relations between gonorrhea and syphilis. His conclusion was that blennorrhagia should be divided into two classes. Blennorrhagia, unqual-

2. Traité, ed. 6, autographed by Swediaur on the back of the title page. The sixth French edition is used for reference in this paper, though some of the translations are from the Philadelphia edition.

3. Traité, pt. I, Preface, p. xxv.

ified, he considered to be "a local inflammation which consequently rarely affects the entire system." He had produced a similar condition on himself by irritating injections. The second variety, syphilitic blennorrhagia, he attributed to the "syphilitic virus."

Brief quotations will best show his opinion on the relationship of the diseases.

> Some persons maintain that the virus of gonorrhoea never produces chancres and that the virus of chancres never produces gonorrhoea. . . . I do not deny that this is frequently the case: but frequent observations have equally well proved to me that this assertion is very far from being generally correct. I know of many cases in which patients with gonorrhoea with no ulcer communicated chancres and vice versa.[4]

He was referring to Benjamin Bell whose theory was, of course, right.

The question of the necessity of salivating the patient in the efficacious treatment of syphilis was still an open one. In the sixteenth century it had been universally believed to be essential. Sydenham, Boerhaave and Astruc were among the earlier physicians to believe that it was not essential.

On this Swediaur says:

> I must confess I have always experienced the direct contrary of this assertion. Among a great many patients of different ages and constitutions in different climates, who have been under my care, I have not found one who required salivation, but I have, on the contrary, constantly observed that the greater salivation, the less certain and effectual was the cure of syphilis. That is so true that the modern partisans of salivation unanimously assert that marked salivation is injurious and that only mild salivation must be induced.
>
> If I could admit this last point I should observe that in many cases that is something easier said than done; that is to say, to stop, or even moderate the salivation, once started. It is often entirely beyond our power to accomplish and a remedy which will produce this specific effect is still one of the unknown things in medicine.[5]

Swediaur's recommendations regarding treatment are conservative. He discusses at length the various forms of mercury and other drugs and finally makes the following very modern statement.

> I end this long chapter with the observation that we should consider, and we may even establish this principle as a general rule, that there is no mercurial preparation nor any other remedy whatsoever, which is constantly suitable in all cases of syphilis and that consequently there is no *universal antisyphilitic remedy*.
>
> My experience, in accord with the observations of the most enlightened physicians of Europe, more and more confirms this truth that the different preparations

4. Traité, pt. II, p. 21.
5. Traité, pt. II, p. 200.

of mercury ought to be adapted to the temperament and idiosyncrasy of each patient, to the modifications or degenerations of the disease itself in the different patients, as well as to the different states and various complications of syphilis with other diseases. This being done, these diseases are almost always cured, or at least rarely fail to yield to the efforts of the art.[6]

And in the *avertissement* to his "Pharmacopoeia syphilitica" he says:

It is a truth well recognized today that it is less the exact knowledge of remedies than the judgment with which they are applied, which characterizes the good physician.

Swediaur was one of the early writers who ascribed arthritis to gonorrhea. Strange as it may seem, even up to the time of John Hunter, it had been considered as a cause, not as a result of gonorrhea. The gonorrhea in such cases was regarded as a manifestation of gout. Monteggia in 1794 reported three well described cases in young persons who had never had the gout. Swediaur in his fourth edition (1801) describes the condition as follows, but, as the note shows, he is still in doubt as to whether the condition is really gonorrheal.

Of Arthrocele, Gonocele, or Blennorrhagic Swelling of the Knee.

A very considerable swelling of the knee, (sometimes of both knees, and the heel at once), attended by excruciating pains in the joint, sometimes occur in men after a blennorrhagia. These pains, accompanied by more or less symptomatic fever, continue for two or three weeks, and gradually go off, leaving a stiffness in the joint, which lasts for many months.

This disease particularly affects young men, who after a debauch, have been infected with blennorrhagia, with which it seems to be intimately connected.*

It is surprising that no author, has treated this disease, as the consequence or symptom of blennorrhagia. It is not very uncommon, for in the course of my practice I have seen six or eight cases, each of which came on about the eighth or sixth day of the blennorrhagia, and in every instance the discharge from the urethra was either sensibly diminished or totally suppressed.

For want of sufficient observation, I have not been able to determine the character of this disease; but in all the cases which have come within my knowledge, the disease appeared to partake of the character of gout, with this exception, that all the persons were about the age of twenty-three or thirty, that the colour of the skin was not changed, and that the swelling bore handling without exciting pain.

The swelling gradually disappears, by the free use of mild diluting drinks, and by frictions with the ammoniacal liniment; but above all with a liniment made of gum ammoniac dissolved in the vinegar of squills.[7]

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6. Traité, pt. II, p. 294.

7. Traité, pt. I, p. 147.

* The disease is termed in English, a white swelling, because the colour of the skin is not changed. It is seated in the sacculi mucosi, found above the knee joint. It would be very desirable to ascertain, whether such blennorrhagia is not rather arthritic than syphilitic.

The last chapter of the book is devoted to the methods of allaying fears of the syphilophobe and of the unduly worried syphilitic. A part of it follows:

> The least headache, the slightest rheumatic pain, or the smallest pimple upon the skin, were by such patients accounted certain proofs of the virus lurking in the system, and about to produce the most direful effects. These patients are real objects of compassion: we ought to bestow some time for inquiry, and pay the most careful attention towards them; for we can hardly think of a greater degree of misery, than to be perpetually haunted with such fears. They can only be cured by relieving them of this prejudice. In case the patients have been exposed to the infection, without having contracted any symptom, we may frequently succeed in curing them, by administering small doses of mercury, and inspiring them with confidence in our knowledge and skill; and by thus exciting their hopes of a cure, we shall succeed, for the most part, in a few weeks or months, in effectually and radically curing these disorders of the imagination. But if, after the use of this remedy, the patients continue in their fears, and upon a careful inquiry, we find no syphilitic symptoms, we should endeavor to correct their prejudice, by setting before them the examples of others of their acquaintance; or, if circumstances permit, of those of our own, who have been affected as much as themselves, or perhaps much more, who now, perhaps, after a great number of years, enjoy the most perfect state of health, are married, and have fine healthy children. When such statement has not produced the desired effect, I have succeeded in cases apparently desperate, by relating to the patient, that I had been unfortunately infected with the disease in all its stages, at different periods of my life. I have told them to observe, that even in my fiftieth year I enjoyed perfect health, having neither headache, nor disorder in my stomach, nor the slightest indisposition; and that, for fifteen years, no man could be freer from disease.[8]

Swediaur was an industrious worker, a keen observer and a clear thinker and writer. While he contributed no great addition to the fundamental knowledge of syphilis, his book was a valuable presentation of the whole subject. I know of no easier or better way of getting a good view of all the problems that confronted the syphilologist of that period than by reading this book.

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PHOTOGRAPHY IN DERMATOLOGY

A NEW METHOD

KENNETH M. DAVENPORT, M.D.
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A resubmission of the subject, "Photography in Dermatology," admirably dealt with by Howard Fox [1] in 1921, might seem repetitious were it not for the advances in photographic technic since that time. It is a compliment to Dr. Fox that the advances suggested in this article are not extraordinary, and that in essence we have little to add to his thesis. We may therefore be forgiven for at times quoting him quite literally. He has covered most of the details, and the interested physician is urged to take note of his article. The passage of twelve years seems sufficient justification for bringing the subject up to date. Dr. Fox's article provides a background; and it is felt that this article from the home of photography offers a new departure. We shall review Dr. Fox's dissertation briefly, and shall present our simplified technic, which involves the use of the new photoflash lamp.

Photography is a natural avocation to the dermatologist, for many reasons.

VALUE OF PHOTOGRAPHY

Educationally.—Not only for the instruction of students, but for self-instruction, photographic prints and slides, when properly made, are valuable aids to dermatosyphilologic teaching. A picture, to be sufficiently good, must portray its subject matter in an obvious manner else it fails to fulfil its purpose. Textbooks are often remiss in this respect, and many of the photographs contained therein merely show a general distribution of the lesions and are not clear enough to show the lesion itself. The picture should always be supplemented by a close-up view, showing the detail in the pathologic area. As distribution is merely one of the dermatologist's differential diagnostic points, photographs which show it alone are of little value. By the same token, atlases of dermatology and syphilology are of little value to the dermatologist himself or to students because the pictures many times are

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Read before the Medical Society of the State of New York, Section on Dermatology, New York, April 5, 1933.

1. Fox, Howard: Observations on Medical Photography, Arch. Dermat. & Syph. **4**:27 (July) 1921.

not sufficiently obvious or typical, or are so poor photographically as to be valueless.

In the past, photographs in the form of prints or lantern slides have been used to supplement didactic and clinical methods of teaching. The common course of the lecturer has been to show the patient to the student, to guide his observations, to suggest a dermatologic and pathologic grouping, to establish a differential diagnosis and to elicit a final diagnosis. To this end, some method must be followed. The patient is at first viewed as a whole; his general welfare, his specific complaints and his medical deficiencies are noted. Ordinarily, the less history and the more observation involved, the more the mental processes of the student are called into action. This observation is no doubt the most important faculty of the dermatologist—inspection. Closer inspection reveals other facts to the student and teacher. The dermatosis shows a predilection and a distribution of lesions which suggest certain conditions and which narrow the diagnostic field. For example, the presence of lesions on the scalp, on the palms and soles, on the interdigital webs and on the extensors or the flexures brings to mind certain classifications of cutaneous conditions. A still closer inspection reveals the primary dermatologic lesion, which in coordination with its distribution may afford another clue to diagnosis.

We believe that the photographic aspects of this subject have been underestimated, in fact, that photography is losing rather than gaining popular support from medical teachers. There are obvious, quite simple reasons for this. We are not aware that any attempt has been made to parallel the method of study described, though it is photographically possible to do so; that is, one may take a photograph of the patient as a whole, showing the distribution of the lesions and the primary lesion in whatsoever detail is deemed necessary. The method suggested in this article makes all these quite necessary photographs available quickly and without inconvenience to the patient.

Clinically.—Photography is valuable from the angle of clinical improvement. It is a source of satisfaction to produce for the private patient evidence which will prove to him beyond peradventure that he has shown improvement. It is common experience that patients are often doubtful regarding the favorable progress of chronic conditions, even when they actually may be doing quite well. This situation arises because patients with cutaneous conditions are inclined to examine themselves several times a day. If they discern no appreciable change from one inspection to another, they are prone to criticize the physician, while the latter, seeing the patient only at definite intervals, may be able to form a totally different opinion as to the patient's progress.

In other words, a record of the status quo ante is important, as later comparisons may prove visually that improvement has taken place.

It is customary to take before and after pictures of patients suffering from dermatoses. This procedure is usually unnecessary from the patient's point of view, although for purposes of records and of teaching, "progress" photographs are much to be desired.

Recreationally.—Unqualifiedly, photography is within itself a fascinating hobby. Beyond its usefulness in teaching, its aid as a record and its use in comparing the former status with later changes, there is an element of artistry which should appeal to many.

A review of the meager literature on this subject has shown that so little has been added to Dr. Fox's paper of 1921 that we may proceed from that point. In his conclusions, he stated, in part:

1. Satisfactory medical photographs cannot be made by the average professional photographer, as he is ignorant of the exact anatomic condition which it is desired to be reproduced.

2. To obtain a collection of good medical photographs, it is generally necessary for the medical man to learn at least how to pose the patient, and to make the exposure himself.

3. Developing and printing can be satisfactorily done by professional photographers.

4. It is urged that care be taken to make artistic as well as anatomically accurate photographs.

Fox made a thorough study of the many methods of lighting possible at that time. The variability of daylight makes it impracticable, as one might wish to make a progress photograph on a day too gloomy to permit photography. Ordinary artificial light is a good source of illumination, but the element of time exposure enters, making it useless in the photography of young children and of moving portions of the body. All in all, the flashlight method has been found to be the best. This involves the use of flashlight powder, resulting in a smoky room unless adequate, necessarily expensive means of ventilation are provided.

The photoflash lamp technic in clinical photography offers, we are sure, the simplest method of making this type of record. It differs from its forerunners in that it is so simple that it may be used by the veriest amateur. Being mindful of but a few simple factors, the physician may pose his patient and take the picture with a minimum of experience. It is much easier to convince the patient that a photographic record and further records of progress are of value if the mechanical set-up is not too time-consuming and pretentious.

THE PHOTOFLASH METHOD [2]

The most common type of clinical photograph is the close-up view in which lesions on or near the surface of the body are depicted. The

2. Fuchs, Arthur W.: Clinical Photography by the Photoflash Lamp Method, J. Biol. Photographic A. **1**:34 (Sept.) 1932.

prime requirement in such photographs is that the lesion be reproduced with practically microscopic detail in and about the lesion; there must be no "softness" or illusion, but, instead, accuracy of structural delineation of the area of interest to show definitely its pathologic nature. The best clinical photographs are those which tell the story in a coldly impersonal, scientific manner.

In order to secure images with the required detail and perspective, it is necessary that the lens of the camera be sharply focused and then "stopped down"; that is, the aperture must be small. Since the amount of light reaching the film is reduced when the size of the aperture is reduced, a proportionate increase in exposure is necessary. This

Fig. 1.—Photograph of a cleft palate. (Original photograph, full scale.)

requirement has always presented a major difficulty in clinical photography because in many cases the patient is unwilling to cooperate, or is incapable of doing so in a manner that will satisfy this photographic limitation.

As an illustration of this point, if an abnormality such as a cleft palate in a lively baby's head (fig. 1) is to be photographed close up, a small aperture is necessary to obtain depth of focus; formerly one had to use a long exposure. Obviously, the best quality photograph could not be made, because it was certain that the patient would move during the exposure. Recent developments, however, have overcome this difficulty, and the photographer may now obtain an abundance of illumination in a very simple manner: All that is necessary is to use

photoflash lamps. The method of close-up clinical photography with this type of illumination is simplicity itself; any one who can focus an image on a ground glass can make photographs of excellent quality. Standardization of close-up clinical photographic procedure becomes a reality with this new development.

Characteristics of the Photoflash Lamp.—The photoflash lamp consists of an oxygen-filled glass bulb within which is a piece of metal foil. When the lamp is connected to a flashlight battery, the foil is ignited by the current, creating an instantaneous blue-white light of uniform intensity, which assures a uniform exposure. There is no flame, smoke, noise or fumes, and no more hazard than when an ordinary electric lamp is used. The flash of light is of such short duration that most patients are barely aware of it; even the nervous patient has no opportunity to react in such a way that the eyes close or the position of the body is changed while the photograph is being made.

Requirements.—As stated before, clinical photographs should have microscopic detail. In addition, it is advisable that they be made to a definite scale so that the size of the area of the lesion will be identical in all photographs that are made in the case. By means of a focusing scale on the bed of the clinical camera, this can be easily accomplished, because all that is necessary is to set the film-holder compartment at the desired indication on the scale and to place the tripod in relationship to the object so that the image will be in sharp focus on the ground glass.

The bellows of the camera should have a draw of at least twice the focal length of the lens so that objects may be photographed actual size, if required. A convenient focal length is 8 inches (20.32 cm.). The lens should be of the anastigmatic type, which is usually supplied with clinical cameras.

In practice, the three-quarter size image made on 5 by 7 inch (12.7 by 17.7 cm.) superspeed safety portrait film [3] has been found most suitable for medical photography, since the bulk of the work is essentially close up, requiring the greatest amount of detail in the area of interest.

Equipment.—The equipment and materials necessary for successful clinical photography with the photoflash lamp do not require a large investment. A list of the essential articles which may be secured from any photographic dealer is as follows:

1. The clinical camera outfit.
2. Two white, portable, home portrait reflectors.
3. One portable, home portrait reflector painted with a coat of light gray, to be used as a background.

3. The medical profession has accepted the 5 by 7 inch size as the standard for the clinical photograph, for it has been found that it satisfies all requirements.

4. A photoflash lamp reflector.
5. An adequate supply of photoflash lamps.
6. Superspeed safety portrait film.

Fig. 2.—Arrangement of the camera, reflectors and sources of illumination with relation to the patient.

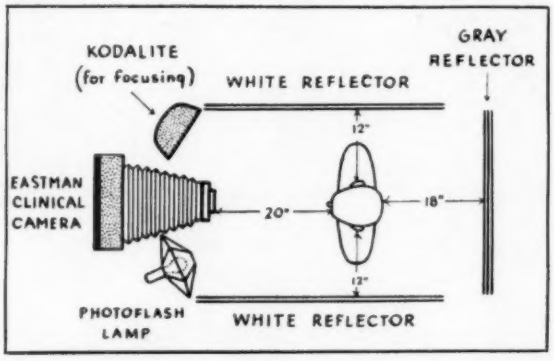

Fig. 3.—Diagram of the arrangement of the camera for a three-quarter scale image on a 5 by 7 inch superspeed portrait film.

Photographic Set-Up.—A description of the method employed for photographing a facial lesion will serve to illustrate the general procedure followed in routine close-up photoflash photography (figs. 2 and 3).

If a facial lesion is to be photographed, the patient is seated with the head adequately supported by a head rest so that the position does not change after the camera is focused. A white reflector is placed on each side of the patient's head, at a distance of about 12 inches (30.48 cm.). The gray background is located 18 inches (45.72 cm.) or more behind the patient. A kodalite or other 500 watt lamp is so placed as to provide the necessary illumination for focusing the lesion on the ground glass.

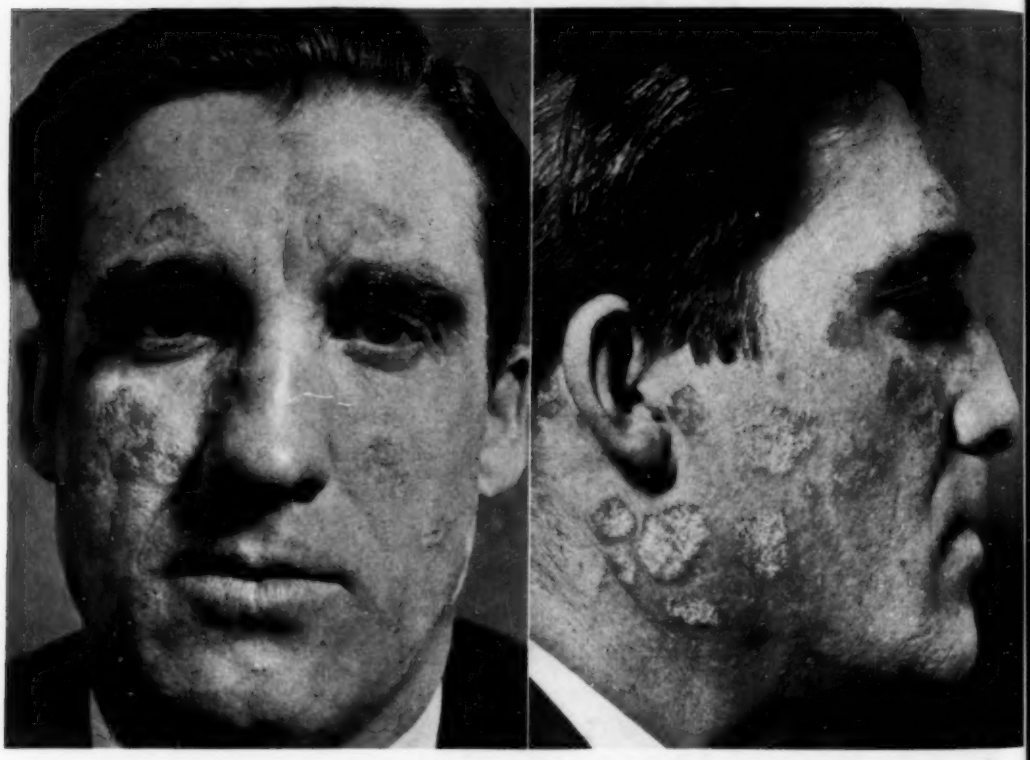

Fig. 4.—Front and side views of a patient with lupus erythematosus. Note the detail in the several lesions. (Original photographs, three-quarter scale.)

The camera is adjusted so that the lens is on a level with the lesion. Assuming that the image desired is of three-quarter size, which is most satisfactory in this type of close-up photography, the lens board is racked to the end of the camera bed and locked in position, and the film-holder compartment is moved until the indicator is over the marker corresponding to the three-quarter scale. The shutter and diaphragm are opened; the kodalite is switched on. The tripod is then moved backward or forward until the image is sharply focused on the ground glass.

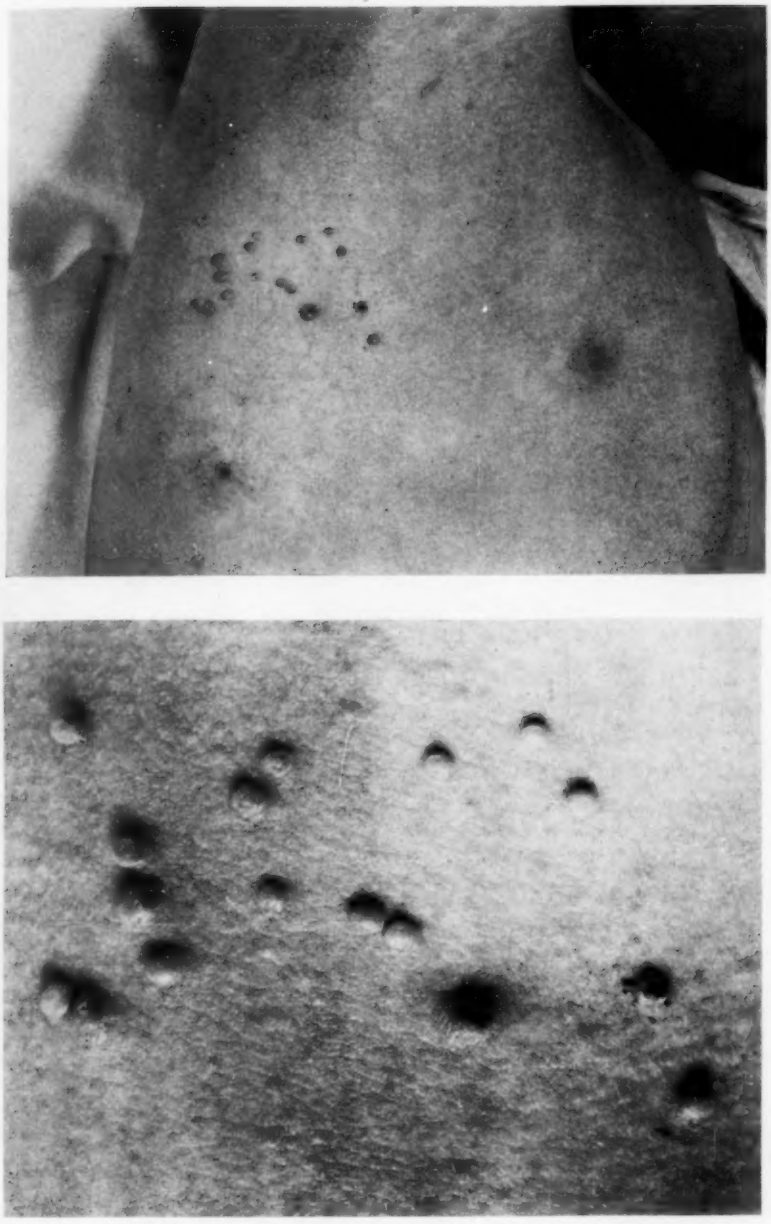

Fig. 5.—The upper picture shows a lateral view of a patient with axillary molluscum contagiosum. (One-quarter scale.) The lower picture shows a close-up view to demonstrate the nature of the growths. (Scale, twice normal.)

When focusing has been completed, the kodalite is switched off, because it is not needed in making the exposure, the photoflash lamp alone being used for that purpose. The diaphragm is closed to f. 32

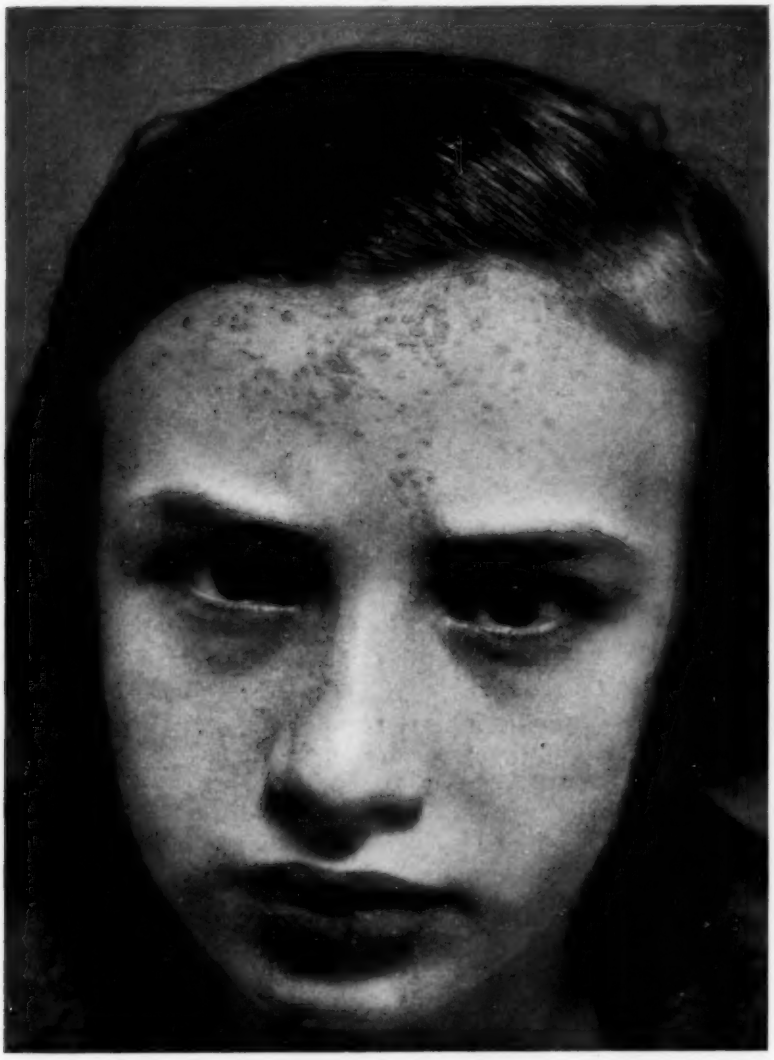

Fig. 6.—Patient with verucca plana juvenilis. (Original photograph, three-quarter scale.)

for brunettes and f. 45 for blondes; the shutter is closed; the film-holder containing the superspeed safety portrait film is placed in the film-holder compartment, and the slide is removed. Finally, the shutter is opened and the photoflash lamp pointed at the lesion so that an angle

of 45 degrees is formed; it is held at the edge of the white reflector, which is positioned on the same side of the face as the lesion, and above and slightly behind the camera lens. (The light from the lamp should

Fig. 7.—Nodulo-ulcerative tertiary syphilid. The upper picture shows a front view of the legs. (Original photograph, one-quarter scale.) The lower picture shows a close-up view of the representative lesion. (Original photograph, full scale.)

never be directed into the lens.) The distance from the lamp to the object will be found to be approximately 30 inches (76.2 cm.). When

the battery switch is pressed, the exposure is made. To complete the procedure, it is necessary only to close the shutter and replace the slide in the film-holder. Representative photographs taken according to the foregoing method are shown in figures 1, 4, 5, 6 and 7.

Processing and Printing.—The film should be developed for eight minutes in x-ray developer solution at 65 F. Thorough rinsing, fixation for fifteen minutes, washing for thirty minutes in circulating water and proper drying complete the processing procedure. Photographic prints may then be made on glossy paper. Such prints assure the highest quality, contain all the wealth of detail recorded in the negative and are most suitable for reproduction.

Transparencies.—If the photographs are to be prepared for exhibition, it is best to show them as transparent positive prints mounted in cardboard mounts. When suitably mounted and placed before an illuminator, the demonstration is exceptionally effective because all the recorded detail will show with great brilliance.

Transparent positives are made by printing the original negative on process safety film in the same manner as paper prints are made. A short exposure, depending on the density of the negative, requires eight minutes' development at 65 F., rinsing, fixing, washing and drying.

Only a small room is required for the set-up; ten square feet is ample for all close-up work. A slightly greater space is necessary for photography of the full figure (distance, 10 feet).

COMMENT

With the certainty of high quality results brought to clinical recording by employing the photoflash lamp method, there should be no question as to the advisability of making clinical photographs as a routine measure. Inexperienced, as well as experienced, physicians can produce satisfactory results easily and quickly. The photographic quality that will be obtained is something that heretofore was deemed impossible even when expensive lighting equipment was used. Such photographs provide invaluable dermatologic records.

16 North Goodman Street.

43 Netherton Road.

DISCUSSION

DR. JOHN HAROLD HUNT, Elmira, N. Y.: It is with a great deal of embarrassment that I open this discussion, especially in the presence of such a recognized authority on dermatophotography as Dr. Howard Fox. If he will tell us something of his methods, I for one shall greatly appreciate it. I must confess that most all of my dermatophotography has been done by a professional photographer. This leaves a great deal to be desired. It is expensive and time-consuming, adds embarrassment to the patient and complicates the legal side of medical photog-

raphy. Difficulty is experienced in having the professional photographer obtain a picture that clearly defines the lesion or lesions of which one desires a record.

Dr. Davenport and his collaborator have described a method that may be used in any office. The simplicity and rapidity with which it is accomplished appeal to me. The photographs that he has shown demonstrate the clearcut, sharply defined outline of lesions that may be obtained with the aid of the photoflash bulb, especially the photograph of a case of molluscum contagiosum. They are to be congratulated on bringing this method to our attention. I should like to ask Dr. Davenport the approximate cost of such equipment.

Dr. Howard Fox, New York: I feel highly complimented by the reference to my article, which I did not think any one had read. I congratulate Dr. Davenport on the demonstration of a complete photographic outfit which does not require a large gallery and is reasonable in price. The samples of his pictures taken by the photoflash method are extremely good, the lighting and the detail being all that could be desired.

The most important features for dermatologic photographs are the illumination, the lens and the posing of the subject. My work has been done at various times by daylight, flashlight and a combination of Cooper Hewitt and Mazda lamps. I have had no experience with the photoflash lamp.

The lens must be of fine quality and one that gives the sharpest possible definition. The speed of the lens is unimportant, as under any circumstances it is stopped down to increase the depth of focus. It is important, however, to have a lens of reasonably long focal distance to avoid the distortion of perspective.

The problem of posing the subject requires experience and some ingenuity. Incidentally, I have learned from my father that dermatologic photographs can be artistic. To have flower pots or grand pianos in the background lessens the artistic value of the picture and distracts the attention from the lesion to be photographed.

While very few commercial photographers can take satisfactory photographs of cutaneous diseases, they can at least do the developing and printing satisfactorily

Clinical Notes

DERMATITIS DUE TO TINCTURE OF GREEN SOAP

DAVID W. JOHNSON, M.D., WHITE PLAINS, N. Y.

A physician, aged 33, complained of an eruption which, for about seven months, had involved the fingers of both hands. Examination revealed a vesiculopustular type of eruption, with considerable scaling about the older lesions, and several small fissures on the flexor surface of the fingers of the right hand.

The lesions apparently went through a cycle: from small and at times grouped vesicles, accompanied by severe itching, they changed to broken-down, exudative papules, and, after a week or ten days, to dry, scaly and at times fissured areas.

A diagnosis of dermatophytosis was made. Examination of the feet disclosed moderate scaling and maceration between the toes, especially between the third and fourth on each foot, and a few scattered vesicles on the soles.

Examination of the feet and hands for tinea repeatedly gave negative results.

In spite of the negative results of examinations, the usual routine treatment for dermatophytosis was instituted, and medications too numerous to mention were used from time to time without result. The patient also was placed on an elimination diet, but no improvement occurred. At the end of eight months, he left for a vacation of two weeks, during which time nothing was applied to the lesions; at the end of that time they had disappeared to a great extent. While in his office the patient used a great deal of tincture of green soap to cleanse his hands; at the time he left for his vacation the supply of tincture of green soap was depleted and for some reason when he returned to his practice, plain soap was used in its stead. The lesions had disappeared at the end of three weeks.

Patch tests were carried out in the usual manner with various dilutions of tincture of green soap. This produced a definite vesicular eruption at the point of contact.

CONCLUSION

Tincture of green soap may produce a dermatitis in susceptible persons.

52 Greenridge Avenue.

News and Comment

CLEVELAND SESSION—AMERICAN MEDICAL ASSOCIATION

Scientific Exhibit

The Section on Dermatology and Syphilology of the American Medical Association will sponsor a section exhibit in the Scientific Exhibit at the Cleveland Session, June 11-15, 1934. The section exhibit committee is composed of: Fred D. Weidman, chairman, Philadelphia; Clark W. Finnerud, Chicago; Robert L. Gilman, Philadelphia, and John E. Rauschkolb, Cleveland.

Applications for space will close on Feb. 26, 1934. Application blanks may be obtained from the members of the committee, or from the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago.

Applications for Space on Program

Applicants for place on the program of the Section on Dermatology and Syphilology of the American Medical Association are requested to submit titles and brief provisional abstracts of their proposed papers to the secretary without delay. Applicants need not be members of this section, but must be Fellows of the Association, graduates in medicine not in private practice, or invited guests.

HARRY R. FOERSTER, M.D., *Secretary*,
208 East Wisconsin Avenue,
Milwaukee, Wis.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY, EXAMINATIONS FOR CERTIFICATES

The American Board of Dermatology and Syphilology will hold written examinations for candidates for a certificate on April 30, 1934, in the following cities: New York, St. Louis, Boston, Cleveland, San Francisco, Philadelphia and Chicago. If a sufficient number of applicants register for the examination from other districts, additional examinations will be held in other cities. This examination will be for applicants in both Group A and Group B. The oral examination for both Group A and Group B will be held in Cleveland on June 11 and 12, at the time of the American Medical Association meeting.

All applicants for a certificate who intend to take these examinations in either group must send their applications and other credentials to the office of the secretary before March 14, 1934. Application blanks and further information may be obtained from the secretary, Dr. C. Guy Lane, 416 Marlboro Street, Boston, Mass.

Books Received

HANDBOOK OF CHEMOTHERAPY. By Dr. Viktor Eischl and Prof. Dr. Hans Schlossberger. Translated by A. S. Schwartzman. Part 1. Baltimore: H. G. Roebuck & Son, 1933.

THE MODERN TREATMENT OF SYPHILIS. By Joseph Earle Moore. Price, $5. Springfield, Ill.: Charles C. Thomas, 1933.

Obituary

JOHN EDWARD LANE

1872-1933

John Lane was a minister's son. His father, John William Lane, was from New Hampshire and a graduate of Amherst and Andover Theological Seminary. His mother, Mary Haynes, born in Massachusetts, was a Mount Holyoke graduate and taught in that institution until her marriage. Like many country ministers, John's father cultivated a bit of land and kept a horse or two and a couple of cows. He had one or two dominant ideas about the training of children which left their mark on John and influenced his character throughout life. One related to the desirability of a lad learning to know something of the care of animals and the cultivation of plants; the other was the conviction that a job worth doing is worth doing well. John's mother had a passion for service; she taught many of the foreigners who settled in North Hadley to speak English, and as time went on and their numbers increased she organized Americanization classes a generation before the term Americanization was coined.

John was born in 1872 at Whately, Mass., but before he reached school age his father had moved to North Hadley, where he served his congregation as guide, philosopher and friend for thirty-three years. John was educated in the common schools of North Hadley and was graduated at Hopkins Academy, the local high school, at the age of 17. He then spent a year at Phillips Andover, where he was graduated in 1890. I do not doubt that John did well at school. He was a studious lad and preferred to have his nose in a book rather than behind a catcher's mask. He liked to swim in the Connecticut River or row thereon, but the chief outlet for his physical energies was the chores around the barn and garden, which he did competently but not without some "grousing." As a result of these early labors, he developed an aversion to asparagus because he had to weed so many asparagus beds in his youth. This work no doubt benefited him physically and cleared the cobwebs out of his brain pan.

John Lane's college career was a creditable one. He achieved two year honors in the modern languages, was in the first colloquy group in his junior year and won a first dispute at commencement. He was the runner-up in the vote for the homeliest man in his class, but it is only

fair to state that the winner had 84 votes while John had only 14. He was already developing that attractive type of rugged physiognomy which is best described as Lincolnian.

After graduation John taught for a while, first in the Norwalk Military School from 1894 to 1895; then at the New Haven High School from 1896 to 1897, and finally, from 1897 to 1898 at St. Mark's School in Southboro, Mass., where he taught French and German. During part of 1895 and 1896 he was abroad studying at the Sorbonne in Paris and at the University of Göttingen, and in 1897 he received his M.A. degree at Yale.

JOHN EDWARD LANE, M.D.
1872–1933

John Lane had always wanted to study medicine, but his father had rather discouraged him. Apparently his father assumed that John was destined to become a country doctor; he well knew the hardships of that life and probably felt that John could not stand the strain. So, for a time, John was headed for a teacher's career. However, the urge to practice medicine rather than to teach finally became too strong, and John entered the Yale Medical School in 1898, eking out his somewhat slender income by tutoring college students in the modern languages. No doubt he overtaxed his strength, for he broke down at the end of his third year, suffered from exhaustion and digestive disturbances, and had to take a year off. Characteristically, he turned the time to profit, however, for he read voraciously and added to his already good knowledge of French,

German and Italian a more than casual acquaintanceship with Spanish and Portuguese. During this period he whetted his mind on Hyde's "Skin Diseases" and probably acquired the taste for dermatology which molded his later career. He returned to Medical School in the fall of 1902, and was graduated with the class of 1903.

Lane served his internship in the Bridgeport Hospital during 1904 and the first half of 1905, and then opened an office as a general practitioner in New Haven, where he carried on until 1910. In May, 1909, he married Alice Treat Rogers and in 1910 he migrated to Yakima, Wash., where he did general practice for nearly three years, serving as county physician and as chairman of the Committee on Tuberculosis of the Washington State Medical Society.

His career as a dermatologist began in 1913, when he decided to take up that specialty and went to Paris and Berlin for further study. In 1915 he returned to New Haven and established himself as a dermatologist. He was successively assistant instructor and clinical professor of dermatology in the Yale Medical School, and served for a time as dermatologist both to Grace and the New Haven Hospitals. He was a member of the New York Dermatological Society, which obligingly extended the city limits 75 miles in order to include him, of the American Dermatological Association, of the Section of Dermatology and Syphilis of the New York Academy of Medicine, of the Section on Dermatology of the American Medical Association and of the New England Dermatological Society. He was also a titular member of the French Society of Dermatology and Syphilography.

One would think that this was enough medical society activity for one man, for John Lane not only belonged to, but actively contributed to, the work of these various dermatologic societies, but in addition he was active in the work of the New Haven Medical Association, of which he was president in 1922, of the New Haven County Medical Association and of the Connecticut State Medical Society. He was secretary of the state medical society from 1917 to 1920, and acted as one of the delegates to the American Medical Association from 1918 to 1932, but declined reelection. He was a member of the Council on Scientific Assembly of the American Medical Association from 1920 until his death and acted as chairman after 1930. He was a member of committees of the House of Delegates of the American Medical Association from time to time and for many years was on the Association's Committee on Graduate Courses for Physicians in Dermatology and Syphilology. He was one of the founders of the Beaumont Club, the local medical historical society, and was its president from 1922 to 1923. During the war he was a member of Local Board Number Six of the Medical Section of the State Council of National Defense and of the War Committee of the Connecticut State Medical Society.

John Lane had marked literary ability and a flair for historical investigation. His published papers on dermatology and syphilology cover a wide range of subjects, are clearly and attractively written and reveal an extensive knowledge both of the literature and of the practical aspects of the subject. He described at least one new disease, red palms, or erythema palmae hereditarium, and he called attention to several others largely overlooked in this country. His historical researches are characterized by meticulous accuracy and a keen sense of proportion. A mere reading of them gives little or no idea of the tenacity of purpose which was involved in digging out the information which they contain. He was particularly interested in the works of François Rabelais, originally a monk, famous as a physician and still better known as an exponent of a robust and masculine type of humor. Lane was also greatly interested in the French physicians who served in the United States during the Revolution. He had already written concerning one of them, Coste, and was collecting material for further studies at the time of his death. He also contributed a valuable paper on the Quaker physician, Robert Willan, one of the fathers of modern dermatology, and one on Daniel Turner, a benefactor of Yale, who received the first honorary M.D. conferred by that college.

It is difficult, perhaps impossible, to estimate dispassionately at such close range the professional achievements and the personality of any man. The perspective which time alone can give is lacking, and I am swayed by my personal prejudices. Nevertheless, I feel that John Lane's career as a physician exemplified those finer attributes of the profession which Robert Louis Stevenson had in mind when he wrote the dedication to Underwoods. "He is the flower (such as it is) of our civilization; and when that stage of man is done with, and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race." Many have abundant reason to remember his generosity and his competency and many too will remember his gruffness, a superficial characteristic which cloaked but could not hide the underlying humanity of the man. He was a practical Christian after the pattern approved by the Apostle James, and, if I may paraphrase a title of a well known novelist, I might describe him as a Christian with the bark on. His attitude toward his patients is well expressed by Sir Thomas Browne in a passage which was marked by John Lane in his own copy of the Religio medici:

"Let me be sick myself, if sometimes the malady of my patient be not a disease to me. I desire rather to cure his infirmities than my own necessities. Where I do him no good, methinks it is scarce honest gain; though I confess 'tis but the worthy salary of our well-intended endeavors."

G. B.

To this fine sketch of Lane by his old friend, George Blumer, a few comments may be added from the standpoint of those who knew him as a dermatologist.

As is seen from Dr. Blumer's sketch, Lane brought to the practice of dermatology a full and thorough training. He had developed himself carefully. His broad general education and his thorough preparation, acting on the mind that had chosen it, were apparent in all of his dermatologic work. In addition to his technical equipment, he applied a wholesome common sense and a penetrating mind to the problems of dermatology. He knew dermatology and its literature. In practice he was essentially a disciple of the French school, with its painstaking attention to therapeutics and its traditions of careful observation and analysis of minute clinical features. These qualities made him one of our ablest dermatologists. Medical history was his penchant, and he was one of the outstanding students of it in this country. One of his useful influences on American dermatology was the stimulation of interest in its history which his work brought about. A notable feat of his in this field was the finding of three portraits of Willan after long search by others in England had failed to find any, and after it had been accepted for nearly a hundred years that no picture existed of this great master.

Lane, during his professional life, had as good an influence on American dermatology as any living dermatologist. This was exerted in his writings and particularly in his association with his colleagues. In meetings of dermatologists he was at his best. He did not talk often, but no discussions were better or more instructive. His store of accurate knowledge, medical and otherwise, and his sound common sense made his comments an addition to any program. His fine old New England drawl and his vivid incisive language gave his discussions a piquant quality that added to their attractiveness.

Respect for him as a man and as a dermatologist and his popularity were about as universal as one could have. He was modest and unpretentious, genial, friendly and social, and devoted to his friends. He was forthright in expression and firm in opposition when he thought opposition was required, but he was direct, genuine and fair, and so manifestly honest and sincere that he disarmed opposition. With his wide knowledge and strong mind, his scholarly tastes, his interesting personality and his whimsical good humor, he was a delightful companion. In the strictest sense he was a gentleman and a scholar. His loss is an irretrievable one to his old friends, and there is none to fill his niche in American dermatology.

Among his contributions to medical literature are:

The Two Favus Families, J. A. M. A. **62**:1363 (Oct. 16) 1915.

The Prevention and Treatment of Ringworm and Favus of the Scalp, J. A. M. A. **65**:1717 (Nov. 13) 1915.

A Case of Gumma of the Sclera (with E. M. Blake), J. A. M. A. **67**:2015 (Dec. 30) 1916.

A Case of Postvaccinal Psoriasis, J. Cutan. Dis. **34**:201 (March) 1916.

Nevus Anemicus, J. Cutan. Dis. **34**:602 (Aug.) 1916.

A Case of Bromoderma, or Bromo-Iododerma, J. A. M. A. **68**:1695 (June 6) 1917.

Perlèche: A Review of the Literature with Observations on the Disease as Seen in New Haven, J. Cutan. Dis. **35**:433 (Aug.) 1917.

Dermatoses Possibly Related to Tuberculosis (with Max Scheer), J. Cutan. Dis. **27**:84 (Feb.) 1919.

Leptothrix, J. Cutan. Dis. **37**:387 (June) 1919.

Some Observations on Keratolysis Exfoliativa, J. Cutan. Dis. **37**:223 (April) 1919.

Vitiligo and Syphilis: An Examination of the Evidence for the Syphilitic Origin of Vitiligo, J. A. M. A. **73**:27 (July 5) 1919.

A Few Early Notes on Syphilis in the English Colonies of North America, Arch. Dermat. & Syph. **2**:215 (Aug.) 1920.

A Simple Apparatus for the Alkalization of Solutions of Arsphenamin, J. A. M. A. **76**:175 (Jan. 15) 1921.

Subacute Malignant Pemphigus with Extensive Bullae (with Robert A. Lambert), Arch. Dermat. & Syph. **4**:141 (Aug.) 1921.

Poikiloderma Atrophicans Vasculare (with Oliver S. Ormsby), Arch. Dermat. & Syph. **4**:563 (Nov.) 1921.

A Note on the Prophylaxis of Syphilis, from the Writings of Daniel Turner, Arch. Dermat. & Syph. **7**:800 (June) 1923.

Poikiloderma Atrophicans Vasculare, Arch. Dermat. & Syph. **8**:378 (Sept.) 1923.

Glossitis Thrombica Mediana, Arch. Dermat. & Syph. **9**:547 (May) 1924.

Syphilitic Bursitis (Luetic Bursopathy of Verneuil), J. A. M. A. **92**:852 (March 15) 1924.

Skin Diseases and Syphilis in the English Colonies of North America, Arch. Dermat. & Syph. **11**:721 (June) 1925.

The Dermatologist-Syphilologist in the United States, J. A. M. A. **84**:616 (May 30) 1925.

A Modification of the McRae Needle, J. A. M. A. **85**:35 (July 7) 1925.

An Unpublished Beaumont Letter, J. A. M. A. **85**:632 (Aug. 22) 1925.

Robert Willan, Arch. Dermat. & Syph. **13**:737 (June) 1926.

Torus Palatinus, J. A. M. A. **88**:1966 (June 18) 1927.

Bonomo's Letter to Redi: Important Document in History of Scabies, Arch. Dermat. & Syph. **18**:1 (July) 1928.

Erythema Palmare Hereditarium (Red Palms), Arch. Dermat. & Syph. **20**: 445 (Oct.) 1929.

Toilet Water Dermatitis, with Especial Reference to "Berlock" Dermatitis (with M. J. Strauss), J. A. M. A. **95**:717 (Sept. 6) 1930.

Acne Necrotica Miliaris of Scalp, Arch. Dermat. & Syph. **28**:10, 1933.

Joseph Jacob Plenk, Arch. Dermat. & Syph. **28**:193 (Aug.) 1933.

Hidrosadenitis Axillaris of Verneuil (his last paper, read at the American Dermatological Association meeting in Chicago, 1933), Arch. Dermat. & Syph. **28**:690 (Nov.) 1933.

W. A. P.

Abstracts from Current Literature

EDITED BY DR. HERBERT RATTNER

CONTRIBUTION TO THE STUDY OF IDIOPATHIC MACULAR ATROPHY. A. CROSTI, Gior. ital. di dermat. e sif. **74**:529 (June) 1933.

Two cases of idiopathic macular atrophy of the skin, both in young women and both with a similar evolution, distribution and symptomatology, are reported. In both cases the lesions appeared at puberty and developed slowly until the twentieth year, when a rapid increase in the number of lesions was noted. The distribution was rather symmetrical, affecting the dorsum, the chest and the waistline in the form of noninflammatory, atrophic, coin-sized elements. One of the patients was in good general health, but the other suffered from pleuropulmonary tuberculosis and had a positive tuberculin test. Histopathologic examination showed inflammatory infiltration in the small foci in the deep corium, particularly around the blood vessels and the nerves, and destruction of the elastic tissue. In one case there were foci of granulomatous nature, in the form of a tuberculous structure with giant cells. Differential diagnosis is considered with erythema urticatus atrophicus of Pellizzari, anetodermia erythematosa of Jadassohn and multiple growths of Schweninger and Buzzi.

UNIVERSAL TRICHOPHYTOSIS WITH THE FORMATION OF ENORMOUS, DEEP TUMORS. MARIO ARTOM, Gior. ital. di dermat. e sif. **74**:563 (June) 1933.

The author reports the case of a woman, aged 48, who suffered for eight years from an erythematous, squamous rash covering the scalp and the entire surface of the skin. The most interesting feature of the case was the presence in the periauricular regions, scalp, right breast and left palm of huge, tumor-like granulomas. Histopathologic examination showed the presence of mycelial masses similar to grains of actinomyces and surrounded by a granulomatous infiltration. Cultures made of the exudate from the sections of the tissue itself and of the circulating blood were positive. The fungus was classified as Trichophyton faviforme similar in certain respects to Trichophyton violaceum. Cultures of the scales from the skin resulted in the recovery of a different fungus, classified as Trichophyton glabrum. The author discusses the possibility that both growths were varieties of the same fungus, which developed different cultural and morphologic characteristics, owing to the different habitats. This case seems closely allied to those of granuloma trichophyticum of Majocchi.

CONTRIBUTION TO THE STUDY OF PEMPHIGUS VEGETANS. GIULIO RADAELI, Gior. ital. di dermat. e sif. **74**:583 (June) 1933.

This article presents the report of three cases of pemphigus vegetans and a discussion of its relations to pyoderma vegetans of Hallopeau. Interesting bacteriologic and biologic researches failed to throw light on the etiology of the disease.

HISTOLOGY OF TUBERCULIDS. V. LEIGHEB, Gior. ital. di dermat. e sif. **74**:634 (June) 1933.

In this interesting series of experiments one case of Boeck's sarcoid and six cases of lupus erythematosus were examined. Blood from the patients was injected intraperitoneally into guinea-pigs which were later killed; histologic examination of all organs was performed. Pathologic evidences of tuberculosis were found in

the lungs and other organs of the animals, and acid-fast granules were demonstrated in the mediastinal glands in one case. In other animals the lesions found were those described as produced by the filtrable forms of Koch's bacillus. The experiments were not regarded as conclusive, since guinea-pigs given injections of the blood of apparently normal persons and even the animals which had not received injections showed pulmonary lesions and lesions similar to those described by the author.

MELANOSIS OF RIEHL. M. COMEL, Gior. ital. di dermat. e sif. **74**:669 (June) 1933.

The author begins this article with an excellent review of the literature and a discussion of similar clinical entities such as melanoderma toxica lichenoides et bullosa of Hoffmann, poikilodermie reticulée pigmentaire du visage et du cou of Civatte and poikiloderma atrophicans reticularis of Jacobi, Petges and Cléjat. The case reported was that of a woman, aged 35, who for three years had an increasing brownish discoloration of the face with slight desquamation and hyperkeratosis of the follicles. Extensive laboratory examinations, including histopathologic observations, are reported.

MELANODERMA TOXICA LICHENOIDES (HOFFMANN). GIORGIO ROBBA, Gior. ital. di dermat. e sif. **74**:687 (June) 1933.

The author reports a case of melanoderma toxica lichenoides in a man working with tar. The patient presented the first symptoms of the cutaneous condition three years after continuous work cleaning and repairing the pipes of exit for the hot tar; sensations of itching and burning on the face and other uncovered parts were followed by gradually increasing pigmentation. The condition affected the face, forearms, abdomen, popliteal spaces and legs. The pigmentation was reticulated with a few telangiectasias on a shiny, thickened skin. Clinical examination revealed hyperhidrosis, low blood pressure, muscular hypotonia and slight vagotonia. Histologically, there were hyperkeratosis, edema and atrophy of the stratum malpighii and a heavy infiltration of lymphocytes in the stratum basale, with cellular dissociation and numerous pigment granules in clumps. In the papillary layer there were edema, dilatation of the blood vessels and a dense perivascular infiltrate. The follicles were filled with hyperkeratotic masses. Masses of granular and amorphous pigment were found in the superficial corium. The reaction to dioxyphenylalanine was strongly positive in the epidermis and negative in the corium. Many chromatophores were found around the vessels, glands and follicles. The author attributes the condition not to one etiologic agent but to the concourse of several agents acting together, such as the irritating action of the tar, the presence of hyperhidrosis, the high temperatures to which the patient was exposed and the action of the short wave rays of the sun. Dysfunction of the suprarenal glands may be a contributing cause. The disease may be considered as an occupational dermatosis.

ALTERATIONS OF THE NERVOUS SYSTEM IN THALLIUM POISONING: LESIONS OF THE PERIPHERAL NERVES, PARTICULARLY OF THE PERIFOLLICULAR NERVE ENDINGS. EMILIO CORTELLA, Gior. ital. di dermat. e sif. **74**:705 (June) 1933.

Continuing his systematic researches on the toxic action of thallium on the nervous system, Cortella examined the follicular nerve endings in rats which had been treated with very small amounts of thallium salts. He found degeneration of the nerve endings, with swelling, thickening and tortuosity of the fibers. When thallium was administered percutaneously, these degenerations were still more marked. Cortella believes that thallium has an elective action on the nervous system in general. The author is noncommittal as to the mechanism of alopecia produced by thallium, although the nervous lesions about the follicles may shed some light on the subject.

CALCIUM METABOLISM AND KELOIDS. ANTONIO MARRAS, Gior. ital. di dermat. e sif. **74**:715 (June) 1933.

Researches on the blood calcium and on the calcium contents of normal and pathologic skin in four cases of keloid showed a considerable increase of the calcium in the tissues as well as in the blood. There were no evidences of tuberculosis in the patients.

ANORECTAL SYNDROME AND NICOLAS-FAVRE DISEASE. G. DEL VIVO, Gior. ital. di dermat. e sif. **74**:735 (June) 1933.

This article is the report of four cases of anorectal syndrome in prostitutes. The author concludes that some cases of anorectal syndrome are due to the virus of the Nicolas-Favre disease, but he warns against this diagnosis in all cases on the basis of a positive Frei test alone, since there is always the possibility of the coexistence of lymphogranulomatosis with other venereal diseases, such as syphilis, which are capable of producing similar manifestations.

NODULAR MYOLYSIS OF THE TONGUE. A. H. ROFFO, Rev. méd. latino-am. **18**:891 (May) 1933.

This is the second case of nodular myolysis reported by Roffo in five years from a total of 800 tumors of the tongue. The condition consists of a nodular growth of the tongue with fibrillar degeneration of the striated muscle. The case reported in this article was that of a woman, aged 31, who had a nodule the size of an almond, of three years' duration, on the right side of the dorsum of the tongue. The surface of the tumor was smooth, and its consistency was rather hard; it was painless and was covered by normal mucous membrane. The pathologic lesions were limited to the muscle; the muscular fibers were ill stained and granular, and in the advanced stages of degeneration the muscular fibers were entirely missing. In both cases reported by the author there were no clinical or histopathologic signs of inflammation. The author believes that traumatism is responsible for the condition.

VERRUCA PERUANA OR CARRION'S DISEASE. PEDRO WEISS, Rev. méd. latino-am. **18**:1121 (July) 1933.

This is an excellent article by a distinguished professor of the University of Lima, Peru, which brings the knowledge of this rare disease up to date. Verruca peruana is a disease of the reticulo-endothelial system, inoculable in man and animals. In an endemic form, it is exclusively localized in a few narrow valleys of Peru. Its etiologic agent is Bartonella bacilliformis (Strong, 1915), and it is transmitted by Phlebotomus (Towsend-Shanon). In its clinical evolution the disease presents a hematic phase characterized by the presence of the bartonella in the erythrocytes and by degenerative anemia, and a stationary phase called by the author the histioid phase, because the germs are by that time localized in the tissues, particularly in the reticulo-endothelial cells, where they produce proliferation and degenerative reactions. These changes give rise to the clinical nodular growths of the skin and internal organs, which have given the disease the name of verruca. Verrucae are always present in the nonfatal cases. There is an acute form that leaves lasting immunity and a chronic form which may last for years. The term Oroya fever should be discarded, since it serves to designate only one of the stages of a clinical form of the disease.

PARDO-CASTELLO, Havana, Cuba.

CHLOROSULPHONIC ACID CAUTERIZATION AS AN INDUSTRIAL ACCIDENT. L. ARZT, Dermat. Wchnschr. **97**:995 (July 8) 1933.

The cases of three patients who suffered severe third-degree burns from the accidental spilling of chlorosulphonic acid are described. The acid was employed in making certain gases used during the World War; it is also used in the manufacture of saccharin. It is a strong cauterizing agent.

CHRONIC HEMORRHAGIC VULVITIS (LIPSCHÜTZ). L. KUMER, Dermat. Wchnschr. **97**:1002 (July 8) 1933.

Though Lipschütz described this condition twelve years ago, it has received only scant recognition. During the past year the author has observed six cases. They occurred in women ranging from 19 to 32 years of age. The eruption consisted of from three or four to a dozen or more blood-red papules on the inner surface of the labia minora. There were no subjective symptoms, and investigations failed to reveal the etiology. Histologically, there was hemorrhage with a mild inflammatory reaction. Kumer concludes with Lipschütz that the disorder is based on a local predisposition of the mucous membrane.

TERTIARY CIRCINATE ERYTHEMA WITH SCLEROSIS REDUX. R. MATZENAUER, Dermat. Wchnschr. **97**:1005 (July 8) 1933.

The patient had acquired syphilis ten years before. He received intensive treatment and remained clinically and serologically well until the illness in question occurred. A nodule developed at the site of the original chancre. The patient said that he had not had extramarital intercourse; a dark-field examination and a serologic examination gave negative results. A diagnosis of sclerosis redux was made, and routine treatment was started. Following the second injection of neoarsphenamine, an eruption consisting of macular, rose-colored rings occurred on the lower portion of the trunk. This flared up following the third injection, and then slowly faded, some evidence of it remaining until after the third course of treatment was completed. The author considered that the eruption was a tertiary manifestation of syphilis, in spite of its lack of induration.

JUXTA-ARTICULAR NODES (JEANSELME). G. NOBL, Dermat. Wchnschr. **97**:1008 (July 8) 1933.

The author reports two cases of juxta-articular nodes with the histologic observations. One patient had never had syphilis; the other had been treated for early syphilis with a serologic and clinical cure fifteen years before.

UNUSUAL UNGUAL CONDITION IN TWO PORK-BUTCHERS. M. OPPENHEIM, Dermat. Wchnschr. **97**:1012 (July 8) 1933.

Two patients were observed, each of whom had a partial separation of the finger-nails from the nail beds. Both were pork-butchers, and the disorder was apparently due to the mechanical irritation involved in removing the bristles from pig's feet. This is done while the material is soaking in a hot solution of soda.

PUSTULAR EXANTHEM RESEMBLING SMALLPOX DUE TO MELUBRIN. G. SCHERBER, Dermat. Wchnschr. **97**:1017 (July 8) 1933.

A generalized pustular eruption occurred following the ingestion of twenty tablets of melubrin (phenyl-dimethyl-pyrazolon-amido-methan-sulpho-acid sodium), each containing 0.5 Gm. There were a preliminary chill and rise in temperature, and the eruption resembled variola in some areas but was polymorphic for the most part.

SCHIZOSACCHAROMYCES HOMINIS BENEDEK. OTTO BACKOFEN, Dermat. Wchnschr. **97**:1055 (July 15) 1933.

Schizosaccharomyces hominis is considered to be a bacillus rather than a schizosaccharomyces and is renamed Bacillus megatherium-hominis. Cultures were made following Benedek's method, from the blood, from the content of bullae caused by cantharides and from the scales. Forty-five patients with psoriasis, eczema and other cutaneous conditions comprised the material. Not a single positive culture was obtained.

TUBERCLE BACILLEMIA IN TUBERCULOSIS OF THE SKIN. LUTZ BERNHARDT, Dermat. Wchnschr. **97**:1056 (July 15) 1933.

The author made three hundred cultures of the blood from sixty patients with tuberculosis of the skin. The method described in Löwenstein's latest articles was carefully adhered to. No positive cultures were obtained. Positive cultures were obtained from the cardiac blood of heavily infected guinea-pigs (two of three), which indicates that the culture medium is suitable.

TAUSSIG, San Francisco.

IDENTITY OF ADENOMA SEBACEUM, NEUROFIBROMATOSIS AND SUBUNGUAL FIBROMATOSIS. I. ENOKOW, Dermat. Wchnschr. **97**:1061 (July 15) 1933.

On the basis of an analysis of reports in the literature and of observations on a woman in whom adenoma sebaceum, neurofibromatosis and subungual fibromatosis concurred, Enokow reaches the following conclusions: 1. Adenoma sebaceum is one of the manifestations of neurofibromatosis. This is proved by the frequent concurrence of these two dermatoses, by their common origin and by the similarity in their clinical and histologic aspects. 2. Subungual fibromatosis supplements the generalized disturbances of neurofibromatosis and of adenoma sebaceum: It has the same pathogenesis and consequently should not be considered as a separate nosologic entity.

[J. A. M. A.]

USE OF THE FILIFORM DOUCHE IN DERMATOLOGY AND THE ADVANTAGES OF A NEW APPARATUS. M. MONACELLI, Dermat. Wchnschr. **97**:1064 (July 15) 1933.

The author describes a new and simplified apparatus for the production of the filiform douche. It consists in the production of a fine stream of hot water through a jet of from 0.5 to 1.5 mm. at a pressure of from 8 to 12 atmospheres. This form of therapy has been found most useful in juvenile acne, rosacea and neurodermite. The author believes that it is contraindicated in lupus vulgaris.

CRITICISM OF DERMATOLOGIC THERAPY: ACNE VULGARIS AND ROENTGEN RADIATION. M. K. POLANO, Dermat. Wchnschr. **97**:1070 (July 15) 1933.

The author treated thirty-six patients suffering from acne with topical applications to both sides of the face in each instance. One side of the face was also irradiated. In only one instance could difference between the two sides be discerned, and this disappeared within three weeks. The work of Niles (ARCH. DERMAT. & SYPH. **27**:89 [Jan.] 1933) is mentioned in a note.

DERMATOCHALASIS (FLABBY SKIN), WITH PARTICULAR ATTENTION TO ITS PATHOGENESIS AND RELATIONSHIP TO DERMATITIS ATROPHICANS PROGRESSIVA. HERBERT FUHS, Dermat. Wchnschr. **97**:1099 (July 22) 1933.

The clinical and histologic findings in five cases of dermatochalasis are presented. The close histologic and clinical relationship between this condition and dermatitis atrophicans progressiva is pointed out and discussed.

DEVELOPMENT OF TRUE MUCUS TISSUE IN THE SKIN. ALBERT WIEDMANN, Dermat. Wchnschr. **97**:1155 (Aug. 5) 1933.

The cases of two patients with tumors presenting myxomatous tissue are described. The first was that of a man, aged 68, who had had a nodular growth below the left patella for five years. Histologically, the tumor consisted of lobules of mucous tissue with a vascular fibrous network forming the septums. In the mucoid material were connective tissue cells apparently undergoing a mucoid degeneration. In the second case the patient was a man, aged 62, who had a small tumor excised from his buttock. Microscopically, myxomatous changes were seen around the sweat glands.

VALUE OF GERMANIN IN PEMPHIGUS CHRONICUS. H. G. BODE, Dermat. Wchnschr. **97**:1160 (Aug. 5) 1933.

Two patients with generalized chronic pemphigus and one with involvement of the mucous membrane of the mouth were treated with germanin. They received no benefit.

TWO CASES OF MILKER'S NODULES. JULIUS WENDLBERGER, Dermat. Wchnschr. **97**:1199 (Aug. 12) 1933.

Two cases of milker's nodes are reported, with the histologic examination in one case. The author agrees with most authorities that the condition is due to a weakened virus of cowpox.

EXPERIMENTALLY INDUCED PASSIVE CONGESTION HEMORRHAGES (RUMPEL-LEEDE PHENOMENON). OTTO BLOCH, Dermat. Wchnschr. **97**:1203 (Aug. 12) 1933.

The Rumpel-Leede phenomenon consists in the appearance of petechiae around the elbow and forearm following the application of a tourniquet to the arm for from fifteen to twenty minutes. The tourniquet is tight enough to block the venous flow, although it allows the arterial blood to enter the extremity. This phenomenon has been described as occurring in all cases of scarlet fever and was considered as a sign of some value in the differential diagnosis of this condition. Bloch performed the test on 351 routine patients and entirely normal persons in the clinic for cutaneous diseases and found a positive result in about one third of the cases. He considers the test valueless as a diagnostic aid.

NAEVUS ENDOTHELIOMATODES. ROBERTO CASAZZA, Dermat. Wchnschr. **97**:1209 (Aug. 12) 1933.

A lesion resembling clinically a pyogenic granuloma developed on a pigmented nevus in a man 28 years of age. The nevus had been present since childhood, whereas the vascular change had developed during the past few months. Microscopically, the lesion consisted of new blood vessels and a proliferation of endothelial cells with strands of cells indistinguishable from nevus cells.

COMPARATIVE STUDIES ON THE SUGAR CONTENT OF THE CAPILLARIES IN PATHOLOGIC AND IN NORMAL SKIN. A. MIDANA and A. GALLIA, Dermat. Wchnschr. **97**:1255 (Aug. 26) 1933.

In thirty-six patients with various cutaneous disorders, blood was taken from one of the lesions and from contiguous normal skin, and the sugar content was determined by the Hagedorn-Jensen micrometric method. Thirteen normal persons showed a small erythematous reaction to treatment with ultraviolet rays from a water-cooled quartz mercury vapor arc lamp, and blood was similarly examined from the lesions and from normal untreated skin. In fourteen of fifteen cases

of psoriasis a higher sugar content was found in the lesions than in normal skin, the difference averaging 0.097 Gm. per hundred cubic centimeters. In seven cases of eczema the results varied, two showing a higher amount in the affected area, four a lower amount and one an equal amount. There was no marked difference in five cases of neurodermite. Four cases of lupus vulgaris showed slightly higher values for the normal skin. Eight of the thirteen persons treated with ultraviolet rays showed a higher content of sugar in the blood from the irradiated areas than from the nonirradiated areas; one showed the reverse, and four showed no variation.

PITYRIASIS ROSEA HAEMORRHAGICA. E. KOGOJ, Dermat. Wchnschr. **97**:1261 (Aug. 26) 1933.

A patient with pityriasis rosea in whom the lesions presented numerous punctate hemorrhages was observed.

CASE OF LICHEN RUBER PLANUS VULVAE RESISTANT TO ARSENIC BUT CURED BY ACETARSONE. HANS HIRSCH, Dermat. Wchnschr. **97**:1263 (Aug. 26) 1933.

Solution of potassium arsenite and supersoft roentgen radiation failed to influence lichen planus of the vulva which responded promptly to medication with acetarsone.

PITYRIASIS ROSEA-LIKE TOXICODERMIAS CLEARING WITH PIGMENTATION, AND PITYRIASIS ROSEA WITH PIGMENTATION. CARL MONCORPS, Dermat. Wchnschr. **97**:1283 (Sept. 2) 1933.

Pityriasis rosea or pityriasis rosea-like eruptions developing in the course of or following treatment with arsphenamine or gold preparations run a protracted course, and pigmentation develops. In ordinary pityriasis rosea, the application of preparations containing lead and sulphur either at the same time or one after the other may cause a pigmentation at the site of the lesions which remains for some time.

INFRA-RED PHOTOGRAPHS IN DERMATOLOGY. H. HAXTHAUSEN, Dermat. Wchnschr. **97**:1289 (Sept. 2) 1933.

The author presents photographs of various dermatologic conditions taken on special infra-red plates, a light rich in infra-red rays, with a suitable filter, being used. This technic makes the network of subcutaneous veins visible in the photograph and is especially striking when varicose veins are present.

RARE TUMORS OF THE NAIL BED (NEUROMYO-ARTERIAL GLOMUS TUMORS OR ARTERIAL ANGIONEUROMYOMA). A. STRATMANN, Dermat. Ztschr. **67**:129 (Aug.) 1933.

The arterial angioneuromyoma is a benign, slow-growing tumor which develops most often under the nail. It arises from the arteriovenous anastomoses named glomus by Masson and previously described as Ruffini's bodies. Histologically, the tumors consists of blood vessels of various sizes with masses of cells of epithelial type, and elements suggestive of nerve cells. The literature is reviewed, and one case is reported in detail. The twenty-one cases which have been published are shown in a table.

CAPILLARY MICROSCOPE STUDIES OF FROST BITE. WILHELM RICHTER, Dermat. Ztschr. **67**:147 (Aug.) 1933.

As a result of investigations with the capillary microscope, the author concludes that the crimson spots which occur in the blue-violet coloring of frost bite are due to the dilatation and more rapid flow of blood through the subpapillary plexus.

TAUSSIG, San Francisco.

EFFECTS OF IRRADIATION OF THE SKIN BY A THERAPEUTIC DOSE. OLGA VALENTOVÁ, Česká dermat. **14**:9 (Jan.) 1933.

Irradiation of the skin by a therapeutic epilating dose leads to a nonspecific modification of the biologic function of the cells. It results in an acceleration of cellular metabolism and a decrease in the vitality of the cells as the culmination of the reaction approaches. The microchemical methods of examination reveal in the sensitive cells, especially those of the hair follicles, a shift in the deposit and quantity of potassium and calcium. Potassium, indicating the degree of vitality, decreases, while the calcium content increases and penetrates into the degenerating and simultaneously aging cells of the follicles. The quantity of potassium is again augmented during the regeneration of the cells.

While the less sensitive fatty cells do not show any definite structural changes, they are nevertheless affected by an epilating dose. They appear smaller as the volume of their content diminishes. They are giving up fat faster than they can produce it. Therefore, the changes in the fatty cells would appear to be quantitative rather than qualitative. The reported facts are based on a series of experiments on rats irradiated with both roentgen rays and radium. The soft and hard rays produce the same results.

EPIDERMOLYSIS BULLOSA DYSTROPHICA COMBINED WITH KERATOSIS PALMARIS ET PLANTARIS STRIATA. J. BEZDIČEK, Česká dermat. **14**:49 (March) 1933.

The reported case showed many unusual features besides the coexistence of epidermolysis bullosa dystrophica and keratosis palmaris et plantaris in the same patient. Both conditions appeared almost simultaneously shortly before puberty. They were independent, and the development of keratotic lesions had nothing to do with the formation of bullae. The patient had dystrophy of the nails since birth. There was a multiformity of keratoses, besides typical lesions on the palms and soles: isolated hyperkeratotic papules on the dorsal aspect of the hands and bands below the elbows and knees, formed by the coalescence of papules. Attempts to remove a similar band over the tendo achillis by cautery resulted in keloid formation which extended beyond the confines of the original band. The family history showed no hereditary tendency in regard to the diseases.

SPINKA, Texarkana, Texas.

Society Transactions

MANHATTAN DERMATOLOGIC SOCIETY

M. B. Parounagian, M.D., *Secretary*

May 9, 1933

Fred Wise, M.D., *Chairman*

Naevus Vascularis Papillomatosus (?). Presented by Dr. H. J. F. Wallhauser.

A boy, aged 15, presents pinhead-sized, elevated and flat bluish-black lesions arranged in groups involving the right foot, the knee, the left arm, the right buttock, the right hand, the glans penis and the buccal mucosa.

The patient says that the lesions have been present ever since he can remember and that new lesions are gradually developing, beginning as pinpoint, red, flat lesions and gradually becoming elevated. The lesions bleed easily and profusely when traumatized. He says that none of the lesions has ever disappeared spontaneously.

DISCUSSION

Dr. Howard Fox: The patient presents numerous pinhead-sized angiomas, some of which are covered with scales. I think that the condition is angiokeratoma. It is not an ordinary vascular nevus with papillary or verrucous elevations.

Pityriasis Lichenoides and Varioliformis Acutis. Presented by Dr. Isadore Rosen.

A school girl, aged 16, born in the United States, was from the clinic for diseases of the skin of the New York Post-Graduate Medical School and Hospital. Eight months ago she suffered from an attack of grip. Soon afterward she noticed a more or less generalized eruption, which, according to her mother, resembled chickenpox. She attended various clinics, but treatment has been unsuccessful.

The patient has a generalized eruption involving the trunk and the extremities. The eruption is polymorphic, consisting of brownish papules and scaly lesions, some of the papular lesions showing crust formation. The crusted lesions are particularly in evidence on the trunk. There is a marked mottling of the skin produced by numerous small depigmented spots, which are the sites of former lesions. The ends of the finger-nails are fragile and brittle.

All of the routine laboratory examinations, including the Wassermann test, have failed to reveal a pathologic condition.

Cutaneous Leprosy of Long Incubation Period, Treated by Intracutaneous Injections of Chaulmoogra Oil. Presented by Dr. Howard Fox.

Mrs. K., aged 59, born in Courland, came to the United States thirty-three years ago; since then she has always lived in or about New York City. She first noticed evidence of her disease after eighteen years' residence in this country. She presents a profuse eruption of yellowish-red nodules, mostly on the exterior surface of the upper extremities and, to a less extent, on the face. There is marked enlargement of the ulnar nerves, and there are areas of anesthesia of the extremities. The eruption has become much more extensive in the past four years.

Considerable improvement resulted from intracutaneous injections of ethyl esters of chaulmoogra oil into the lesions of the arms and forearms. The patient has not been regular in following the treatment.

DISCUSSION

DR. MAX SCHEER: An apparently long period of incubation is not unusual in leprosy. It is likely, however, that careful examination will disclose at an earlier period lesions which would be unnoticed by the patient.

DR. ISADORE ROSEN: With reference to the period of incubation in leprosy, I should like to cite the case of a patient whom I saw a number of years ago. He was born in Connecticut and lived there until he enlisted as a private in the United States Army during the Spanish-American War; he served for a few months in the Philippines. He then returned to his native state, and eighteen or nineteen years later macular-anesthetic leprosy developed.

DR. HOWARD FOX: The two points I wished to stress were the improvement after intracutaneous injections of ethyl esters of chaulmoogra oil and the long so-called period of incubation. Whether this period represents a true germination of the bacilli or merely a latent period, I do not know. It is convenient to speak of it as one of incubation. I agree that in many cases premonitory symptoms are overlooked by the patient, and that the length of time from the infection to the first evidence of the disease may not be as long as it appears in this case.

In regard to endemic cases in the United States, it can be said that with the exception of the Gulf States, the disease is rarely contracted in this country.

RADIODERMATITIS. Presented by DR. ANDREW J. GILMOUR.

A man, aged 38, with radiodermatitis of the hands is presented for therapeutic suggestions. He has received 250 exposures over a period of eleven years for the treatment of "eczema." No treatment has been given during the past two years.

DISCUSSION

DR. FRED WISE: European dermatologists report excellent results obtained in these conditions by the use of radium emanation and of solutions and ointments of thorium.

DR. JOSEPH J. ELLER: I do not understand how the application of such drugs could act without producing more atrophy and other sequelae.

LUPUS ERYTHEMATOSUS. Presented by DR. HOWARD FOX.

A man, aged 54, born in the United States, employed in a warehouse, first noticed an eruption on the backs of his hands ten months ago. Three months ago an eruption appeared on the forehead, and one month later on the cheeks and ears. The lesions on the back of the hands are erythematopapular, smooth, slightly raised and ill defined. On the cheeks are well defined, reddish, smooth, slightly elevated, semisolid, bandlike patches extending from the nose to the temples. On the back of the hands are also a few reddish papules which show a tendency to coalesce. There is no appreciable scaling and no evidence of itching. The patient states that the eruption flares up frequently after exposure to the sun or to cold air. He also says that frequently there is a slight swelling of the ears with some itching, though they appear to be normal at present. The patient appears to be in good general health.

DISCUSSION

DR. ANDREW J. GILMOUR: The eruption on the face is very peculiar and looks as though it might be due to lymphatic stasis. The patient told me that at times his ears swell up for three or four days and then return to the normal size. This has happened several times. I should hesitate to make a diagnosis on one examination.

DR. MIHRAN B. PAROUNAGIAN: My diagnosis would be acute lupus erythematosus.

DR. MAX SCHEER: I think that the most likely diagnosis is the one suggested by Dr. Fox.

DR. J. FRANK FRASER: The edematous appearance is consistent with lupus erythematosus. Edema of the upper corium is one of the characteristic features of that disease.

DR. HOWARD FOX: I saw the patient for the first time this afternoon and made a diagnosis of probable lupus erythematosus. I think that the history of exacerbations on exposure to light is suggestive. I do not believe that this case could be classed as one of recurring lymphangitis of the type which ends in so-called solid edema of the face.

ARSPHENAMINE DERMATITIS. Presented by DR. M. B. PAROUNAGIAN.

This patient, who was presented in April, 1933, is presented for the second time at the request of some of the members who wished to see the result of therapy with sodium thiosulphate.

Since his first presentation he has received six intravenous injections of sodium thiosulphate; prior to his first presentation he had received three doses of the drug.

There are now seen an almost complete absence of desquamation, a tendency to softening of the skin and a diminution of the keratosis of the palms and soles. The patient thinks that there has been some fading in the brownish pigmentation.

PAPULONECROTIC TUBERCULIDS (GENERALIZED). Presented by DR. MIHRAN B. PAROUNAGIAN.

A man, aged 26, presents lesions which have been appearing on the trunk and the upper extremities for about three months. Fresh lesions have appeared while older lesions have healed.

On the extensor surfaces of the arms and forearms chiefly, and also less extensively on the flexor aspects, are many erythematous papules; some of the papules are necrotic at the center, others are pustular. Similar lesions are present on the trunk, front and back. There are many brown, pigmented scars, which are the sites of previous lesions. Roentgen examination of the chest showed numerous calcifid foci in the apex of the left lung, above and below the clavicle, and calcified foci in the right lung, in the axillary portion of the first costal interspace. The Wassermann test was negative.

DISCUSSION

DR. MAX SCHEER: I accept the diagnosis.

DR. ISADORE ROSEN: I fail to see any active lesions suggestive of papulonecrotic tuberculid. The scars may have been caused by smallpox, which the patient had in early life. The pustular lesions may be due to drugs.

DR. HOWARD FOX: I agree with Dr. Rosen that there are none of the classic lesions of papulonecrotic tuberculid in this case. The location is not predominantly on the extremities, and there are no active lesions at present. An eruption due to an iodide or bromide or some pyogenic infection seems to me to be the probable diagnosis.

DR. J. FRANK FRASER: I agree with the opinions of Dr. Rosen and Dr. Fox. The condition is a pustular acne, the causative agent of which may be iodides or bromides.

DR. FRED WISE: I think that if this patient had given a history of having taken any form of drugs, I should make the diagnosis of an eruption due to iodides. In spite of the lack of relevant history, I should suggest that diagnosis.

DR. MIHRAN B. PAROUNAGIAN: So far as acne is concerned, the patient has lesions on locations where acne does not usually occur. The patient has tuberculosis of the lungs, and that should be taken into consideration.

REPORT ON CASE PREVIOUSLY PRESENTED. DR. HOWARD FOX.

S. F., aged 17 years, an American girl of Italian parentage, was presented on March 19, 1933, with a condition diagnosed as lupus erythematosus disseminatus. She died on April 27 of endocarditis and bronchopneumonia at Mount Sinai Hospital.

CHICAGO DERMATOLOGICAL SOCIETY

MAX S. WIEN, M.D., *Secretary*

Regular Meeting, May 17, 1933

OLIVER S. ORMSBY, M.D., *President, in the Chair*

XANTHOMA PALPEBRARUM AND TUBEROSUM MULTIPLEX. Presented by DR. W. W. DUEMLING.

The patient, a woman, aged 36, states that about one year before presentation she noticed a small yellow patch on the left eyelid. About the same time the right eyelid also became involved. The condition progressed until the eyelids of both eyes were entirely encircled by the process. About that time the patient noticed similar lesions on the hands and feet. More recently there has been considerable pain in the joints of the fingers, elbows and knees, and she has also been somewhat short of breath.

The patient has always enjoyed good health except for an attack of jaundice eight or nine years ago, which lasted for ten days. She was pregnant at that time. There is a history of three miscarriages; one child died eleven hours after birth, and there is one child living, 8 years old. In November, 1932, she had what was diagnosed as a hydatid mole. The family history reveals diabetes in one cousin on the mother's side and in two on the father's side. Two brothers of her maternal grandfather died of diabetes.

The patient is a well nourished woman who presents an eruption made up of two parts. The first involves the eyelids, consisting of chamois-colored plaques entirely encircling the eyes. The second part of the eruption involves the hands, feet, elbows and knee. This consists of round and oval, yellowish, firm papules which are sharply demarcated. On the hands and feet they occur in the deep lines and in the areas of pressure. When the hands are flexed firm nodules the size of a pea can be seen, which move with the tendons. A similar lesion can be palpated over the elbow. The lesions are firm to palpation, but are not tender. There is a moderate icterus.

The patient's present weight is 160 pounds (72.6 Kg.). The dextrose tolerance curve is normal and the urine entirely negative. The icteric index on May 11, 1932, was 30. The blood count was: hemoglobin, 68 per cent; erythrocytes, 4,120,000; leukocytes, 7,200; polymorphonuclears, 61 per cent; small lymphocytes, 36 per cent, large lymphocytes, 3 per cent.

DISCUSSION

DR. C. W. FINNERUD: I think that this case illustrates a relationship between at least two types of xanthoma. Several European investigators have shown that they are all the same process. Dr. Bloch explains it satisfactorily from the scientific standpoint.

DR. W. W. DUEMLING: I thought the case was sufficiently interesting to bring the patient over, particularly because of the involvement of the soft palate and the lesions along the tendons and about the neck where she has been in the habit of wearing beads. She had been placed on a reduction diet, but one not entirely free from fat, and has lost some weight. There is some shortness of breath, which might be an indication of cardiovascular lesions.

CARDLIKE SCLERODERMA. Presented by DR. E. P. ZEISLER and DR. M. R. CARO.

A. K., a white girl, aged 12, from the Mandel Clinic, first noticed a white area on the left side of the neck about two years before examination. Several months later, similar lesions appeared in front of the left ear. There have been no subjective symptoms at any time.

On the left side of the neck are several irregular, depigmented areas in some of which there are superficial induration and a definite border, while in others the surface is soft and wrinkled. In front of the left ear there is a circumscribed, irregular patch about 2.5 by 1.5 cm., ivory white and with a smooth glazed surface which has a definite border and is superficially indurated.

A specimen for biopsy taken from the lesion on the face shows a flat epidermis with the loss of rete pegs, dense mantles of lymphocytes about the subpapillary vessels, thickening of the collagen fibers, a slight diminution of the elastic fibers just below the epidermis and fragmentation of the elastic fibers throughout the subpapillary layer.

DISCUSSION

DR. RUBEN NOMLAND: I cannot agree to the diagnosis of cardlike scleroderma, but think it is a case of morphea. My impression of cardlike scleroderma is that the lesions are relatively small and white, whereas these lesions became white in the center secondarily. I think that this case is a rather typical morphea.

DR. E. A. OLIVER: I think it is usual in morphea to see a violaceous border, and, as Dr. Caro pointed out, there is no violaceous border here until the lesions are irritated. I agree with the diagnosis of cardlike scleroderma.

DR. M. R. CARO: The distinction made between scleroderma and morphea is the violaceous periphery. I have seen this patient a number of times over a period of two years, and at no time has there been any violaceous hue about the border. Only after the lesion is rubbed is there the development of a surrounding erythema.

A CASE FOR DIAGNOSIS. ULCERS (STREPTOCOCCUS HAEMOLYTICUS?). Presented by DR. S. W. BECKER.

A man, aged 30, German-American, was first seen in the outpatient department of the University of Chicago Clinics on Dec. 15, 1932. He stated that seven months previously he had noticed a lesion on his chest, which healed within ten days. One month later another lesion appeared, and since that time lesions have appeared at intervals, without any subjective symptoms. They begin as a "lump" deep in the skin, which breaks down in from two to six weeks, discharges a great deal of pus and then heals slowly with scar formation. The lesions have appeared over the trunk, shoulders and extremities. Before coming to this clinic the patient received treatment by various physicians, which he says consisted of intravenous and intramuscular injections and local applications. Several blood tests and an examination of the spinal fluid were reported to have given negative results. Venereal infection is denied.

At the time of examination the patient presented numerous lesions of different size on the trunk, arms and legs. Some of them were nodular, some ulcerative. The latter showed punched-out borders and a necrotic base, with purulent discharge. Contractile tissue paper-like scar formation marked the sites of previous lesions. The distribution was discrete, with some suggestion of grouping, and the configuration of some of the lesions was surpiginous and polycyclic.

General examination gave negative results. The blood pressure was 100 systolic, 62 diastolic. Smears from the pus showed only ordinary pyogenic organisms; cultures were negative for fungi and showed only Staphylococcus albus. The Wassermann reaction of the blood was negative and the Kahn test weakly positive at the first examination. When repeated three days later both the Wassermann and Kahn reactions were negative. The tuberculin test, with a dilution of 1:100,000 (O T) was positive. As late syphilis could not be entirely

eliminated by the clinical picture, the patient was subjected to a therapeutic test with bismuth, but did not return to the clinics after three injections of bismuth sodium tartrate (double strength) showed no clinical effect. On the basis of this negative therapeutic test and the positive tuberculin reaction the condition was considered a subcutaneous tuberculid.

The patient reappeared in April, 1933, and it was found that some of the lesions had healed and new ones had appeared. A biopsy made of a new lesion on the shoulder reveals the picture of a chronic inflammatory process. Stained for tubercle bacilli, the result is negative; Gram stain shows occasional cocci. The tuberculin test was repeated (1:100,000 and 1:10,000), with negative results.

DISCUSSION

DR. M. H. EBERT: I am impressed with the possibility of this being a case of tuberculosis colliquativa. The overhanging margin, the lack of infiltration and the general appearance of a tuberculous ulcer lead me to this opinion. Some of the scars are interesting in that there is bridging and hypertrophy of the scar. The section presented shows no tuberculous structure and the tests made are negative for tuberculosis. The only other alternative is a pyoderma of the dissecting type, described from the Mayo Clinic and by Dr. Mitchell, and I presume that that is what it is, although a sufficient number of Streptococci were never shown in histologic section to warrant a positive diagnosis.

DR. J. H. MITCHELL: I am impressed with the fact that the ulcer on the leg is of the Streptococcus type that I have been seeing. Dr. Becker stated that he had not made cultures for Streptococcus. If any one cares to try to use anti-streptococcic serum, I would caution him to be careful. In the patient I presented the lesion on the leg gets better under some treatment and then disappears. The last time he came back I gave him three injections of Streptococcus serum, one subcutaneously and two intravepously, and have had nothing but trouble since. He has pains in the joints and has been ill ever since this treatment.

DR. E. P. ZEISLER: I do not think that syphilis has been ruled out sufficiently in this case, and I believe that it should be considered. The location of the lesions and the polycyclic arrangement resemble syphilis more than tuberculosis, and unless a therapeutic test has been carried out I think that syphilis cannot be ruled out.

DR. DAVID LIEBERTHAL: I was rather impressed by what Dr. Ebert said. The scars on the arms resemble those from folliclis, and the small lesions on the back are also suggestive of this disorder. The large ulcer on the leg may be due to the combined action of tuberculosis and another factor.

DR. C. W. FINNERUD: I think that this is a case of pyodermia, like the one presented by Dr. Mitchell and those demonstrated to us and reported by the Mayo group.

DR. S. W. BECKER: The patient had been treated for syphilis quite extensively before we saw him. In view of the positive tuberculin test the first time, we thought it might be a tuberculous process. The second tuberculin test was negative. I think it is probably a pyogenic infection of an allergic type.

PEMPHIGUS (?). Presented by DR. E. P. ZEISLER and DR. HERBERT RATTNER.

A Russian Jewess, aged 58, from the Mandel Clinic, presents a lesion on the hard palate that was first noted three months prior to presentation. She has complained of progressive difficulty in swallowing for the past year, but examinations with the esophagoscope two weeks ago gave negative results. Recently there has been loss of strength, but no loss of weight. On the hard palate, in the midline, is a flaccid bulla the size of a dime, surrounded by a narrow hyperemic zone. This lesion is situated about one-half inch (1.27 cm.) beyond the edge of an artificial denture. She states that she uses no irritants. No other lesions are present in the mouth or on the skin. The conjunctivae are

not involved. The Nikolsky sign is negative. Laboratory examinations gave negative results. The patient has been treated with solution of potassium arsenite during the past two weeks.

DISCUSSION

DR. F. E. SENEAR: I believe that this is pemphigus. The possibility of the ingestion of drugs causing the lesions in the mouth I think has been adequately ruled out, and I believe, in view of the race and age of the patient, that we should watch for pemphigus.

DR. E. A. OLIVER: I think that many cases of pemphigus in elderly persons have a distinct initial lesion. This case recalls one that Dr. Senear and I saw some time ago, with an initial lesion on the scalp. It remained isolated and rebellious to treatment for three months. Suddenly there appeared a generalized bullous eruption which covered almost the entire body. This grew steadily worse until the patient died within a very few weeks.

DR. J. H. MITCHELL: Has the lesion remained in the same place all the time?

DR. DAVID LIEBERTHAL: What Dr. Oliver said is well taken. We see, though rarely, patients with a definite initial manifestation from which pemphigus may develop subsequently. I recall three such cases. One was in a woman of 34, who had a bullous, crusted patch on the scalp which lasted for about two months, when a general bullous eruption occurred. The second case was that of a man of 64 who had also a definite crusted lesion on the head before a generalized pemphigus developed; the last was of a man of about 24 in whom pemphigus was preceded by a bullous lesion on the soft palate after a tonsillectomy.

DR. M. H. EBERT: I understand that the single lesion has remained local since the beginning, and I should like to know if new blebs or lesions form.

DR. HERBERT RATTNER: According to the department for diseases of the nose and throat, the lesion has been in the same place for three months. The patient has been under our observation for only two weeks. There is no odor. She wears an artificial denture, but the lesion is some distance above that, and there is a normal zone between the denture and the lesion.

DR. OLIVER S. ORMSBY: How long have the lesions been present at the angles of the mouth?

DR. RATTNER: Ever since the patient was first seen.

DR. C. W. FINNERUD: I think Dr. Ormsby solved the case with his question about the findings in the angle of the mouth. I believe the patch in the angle is like the erosions that result from infection with Monilia. The lesions of the mouth may also be infections with yeast.

DR. J. H. MITCHELL: The commissural lesions appear to me more like Streptococcus than Monilia infections. There is a sharp fissure, and it is very red.

ACRODERMATITIS CHRONICA ATROPHICANS. Presented by DR. E. A. OLIVER and DR. W. W. TOBIN.

A white woman, aged 56, has a progressive eruption on both legs of twelve years' duration. She states that the first patch appeared on the inner surface of the left thigh as a reddened, slightly scaling area which has since become very thin and pouchlike. Other patches have appeared on her legs since that time.

Examination shows a purplish area the size of one's palm on the inner aspect of the left thigh, with a pouchlike laxity and marked atrophy. Other lesions on her legs are similar, but not as lax and less well defined. The microscopic picture is that of an atrophy of the epidermis and cutis, showing marked thinning of the epidermis, loss of elastic tissue and a moderate infiltrate consisting of round and plasma cells.

DISCUSSION

DR. H. M. HEDGE: It is interesting to see the pouchlike lesion on the inner aspect of the upper part of the left thigh with the palpable blood vessels as the

oldest lesion, then the lesion on the left leg which has been present for eight years and the lesion of the left knee which has been present for six years, each showing the progressive stages commensurate with their age. The lesion on the right knee did not show the atrophy resembling tissue paper seen in the older lesions.

DR. LESTER M. WIEDER: This is a very interesting case from the standpoint of the earliness of the lesions, the most recent of which are still edematous in type. In the lesion on the medial aspect of the left thigh the skin is lax and can be drawn out like an elastic pouch, indicating a localized dermatologic process. The association of these various types of lesions in the same person is interesting and indicates an underlying relationship in different clinical types of atrophies.

DR. E. A. OLIVER: The case is presented as an interesting example of acrodermatitis chronica atrophicans, with a patch of cutis elastica on the inner aspect of the thigh.

PEMPHIGUS FOLIACEUS. Presented by DR. M. H. EBERT and DR. B. B. BEESON.

A Negress, aged 28, was first seen at the Central Free Dispensary on Sept. 9, 1930, at which time she presented an itching cutaneous disorder of three months' duration. A generalized exfoliation of the skin with some bullous lesions was present, and she was referred to the Cook County Hospital. She entered the hospital a few weeks later and has been there most of the time since.

There have been periods of recession and exacerbations of her disorder, and she has left the hospital twice during periods of amelioration. The first time was over a year ago, when she remained at home for about four months. She went home again on July 11, 1932, and while at home used "mange soap." She was readmitted to the hospital on July 30, 1932, with a dermatitis venenata superimposed on the existing disorder.

A biopsy was performed in February, 1933, which revealed typical pemphigus foliaceus.

At this time the condition is somewhat aggravated, with several scattered bullous lesions on the hands and forearms.

DISCUSSION

DR. MAX S. WIEN: This patient has been treated in this service for about two and a half years. When first seen, she presented all the clinical features of pemphigus foliaceus. The Nikolsky sign and the Pels test were positive. A remission then occurred, and the entire skin became dry and scaling. There was no pemphigus odor, and she presented the picture of dermatitis exfoliativa. If we had not seen the patient before it would have been hard to believe that she had ever had pemphigus. It is interesting to see her now, with the picture of pemphigus foliaceous.

DR. M. H. EBERT: When I came to the service this patient was there, and I was much inclined to disagree with the diagnosis of any type of pemphigus. It looked like a case of exfoliating dermatitis, origin unknown, but the appearance has gradually changed into the present condition, and recently the patient has presented not only moist lesions but actual bullae. Sections examined histologically show changes compatible with pemphigis foliaceus.

TINEA CAPITIS WITH ASSOCIATED GENERALIZED LICHEN SPINULOSUS (MICROSPORID). Presented by DR. MAX S. WIEN and DR. MINNIE O. PERLSTEIN.

A Negro boy, aged 9, presents a generalized cutaneous eruption of three weeks' duration. When the presence of an eruption on the scalp was called to the attention of the boy's father he stated that he noticed it at the same time he first noted the eruption on the body. The general eruption on the body was preceded a few days by an eruption of similar character on the back of the neck.

Examination of the scalp reveals disseminated patches of grayish, scaling dermatitis in which the hairs are dull and broken off or absent. The skin of the trunk and extremities shows a generalized follicular eruption of hyperkeratotic character, with fine, projecting spines emerging from most of the lesions. The skin in general has the texture of a nutmeg grater. Constitutional symptoms are absent. Examination of epilated hairs revealed, in a potassium hydroxide specimen, a small spore type of ringworm in mosaic clumps situated about the hairs. Biopsy of a follicular lesion from the trunk revealed a hyperkeratotic plug in the follicle.

DISCUSSION

DR. F. E. SENEAR: I think this is a fine example of one of the toxic eruptions associated with ringworm of the scalp. It is unusual to see an outbreak of this extent in association with an infection with Microsporon of a noninflammatory type, particularly one on which no therapy has been used. The eruption of lichen spinulosus is extensive, but there is none of the grouping we see in the cases with a seborrheic basis. I think this is the best example of a Microsporon eruption that we have had.

DR. C. W. FINNERUD: I saw a case of lichen due to Microsporon at the County Hospital, in which there were no more inflammatory changes in the scalp than are present in this case, and I also saw, among a large number in Vienna, several cases that had had no treatment with roentgen rays or other irritating therapy such as usually brings about the generalized eruption.

DR. MAX S. WIEN: We plan to do cultural studies to determine the type of Microsporon present in this case.

[NOTE.—Cultural studies at the University of Illinois College of Medicine by Dr. Theodore Cornbleet revealed the presence of Microsporon audouini in the hair. The blood culture was negative and no fungi were grown in cultures from the spines.]

DERMATITIS HERPETIFORMIS (?) WITH RECURRENT VESICOPUSTULAR LESIONS ON PALMS AND SOLES. Presented by DR. J. H. MITCHELL.

A woman, aged 29, who has been married ten years, with no pregnancy, is in excellent general health. The basal metabolic rate was —18.

She was first seen in May, 1931, with minute lesions of the "itching point" type on the arms and legs. The lesions developed while the patient was in Florida and were thought to be insect bites. Simple external applications were of little benefit. By June 17, 1931, vesicular lesions had appeared in the palms and on the soles. Perfect symmetry of all lesions existed from the time of onset. Intense itching was constantly present and the course was characterized by sharp exacerbations and remissions. The eosinophilia had varied from 2 to 9 per cent, and there was also a pronounced eosinophilia in the vesicle content of all new lesions.

The patient had received intravenous injections of calcium, sodium thiosulphate, neoarsphenamine, tryparsamide and autoserum and intramuscular injections of whole blood, nonspecific protein and aqueous soluble bismuth. Solution of potassium arsenite by mouth invariably gave prompt relief, but the patient manifested signs of intolerance to this form of arsenic by developing a generalized erythema, which subsided with cessation of the treatment. Treatment with inorganic arsenic in the form of pills has likewise been successful and has caused no erythema. Roentgen therapy to the lesions invariably gives marked results, but the limit of tolerance is being reached. Treatment to the spine with roentgen rays, as used by Dr. Michelson, has been of no value. Ultraviolet irradiation with a mercury vapor lamp has been of no benefit.

Repeated microscopic examinations of the vesicle roofs have been negative for fungi. Cultures on Sabouraud medium and on blood agar have been repeatedly

negative. A well developed vesicle which became pustular was removed from the sole for sectioning. It consisted of a large, single epidermic cavity covered by a thick corneous roof. No new vesicle has as yet been removed for sectioning.

DISCUSSION

DR. S. W. BECKER: We have seen a great many of these patients and have studied them thoroughly, because most of them give a history of having received all sorts of treatment, with little or no results. We have found that the patients are all in a state of nervous exhaustion, and have shown that correction of this condition has always resulted in prompt improvement when other measures have failed.

DR. M. H. EBERT: I think this is a case similar to those we all see, with changes in the palms and soles, with a good deal of sensory complaint, often with burning as well as itching. I think they are commonly mistaken for ringworm of the palms and soles, but no fungus is ever demonstrated. I have been interested in them because in the study of dermatitis repens there are some cases that resemble these. I also believe it is cases of this type that were described by Barbour as pustular psoriasis. I do not believe that they are psoriasis or the acrodermatitis continué of Hallopeau. There are no lesions on the nails, but the persistence in spite of treatment is sometimes marked. I know dermatitis herpetiformis has been considered as an alternative diagnosis in some of the cases of acrodermatitis continué in the French literature. I think these are cases of some toxic manifestation.

DR. E. P. ZEISLER: I did not have an opportunity to examine the patient carefully, but did not note any of the classic findings of dermatitis herpetiformis. If there are cases with lesions limited to the palms and soles they are new to me.

DR. C. W. FINNERUD: Clinically I could not diagnose the case as dermatitis herpetiformis and would be interested in hearing how the diagnosis was arrived at.

DR. J. H. MITCHELL: I have been seeing this patient for two years, and have seen her on several occasions when the condition was active; today it is quiescent. As regards nervous exhaustion, she is one of the best golf players around here. She has no children, her only care being a Scottie dog. She has an able-bodied, well-to-do husband who is capable of taking care of her in every way. At present she is practically free from lesions, but I have seen groups of from six to a dozen papules and vesicles on the extremities from the feet to the thighs. These are extremely pruritic, having eosinophils in the vesicles and being always symmetrical. The eosinophils in the blood and vesicle content would suggest toxic eruption, but the presence of eosinophils in the vesicle substance and in the blood would suggest dermatitis herpetiformis. Such lesions on the palms and soles are not commonly reported in the literature. If this condition is a common one, I have been missing a lot, for I have never seen a case like this. There is one case mentioned by Gougerot which, on looking up, I found not to be similar to this one. There is another, recorded in the *Archives of the Journal of Cutaneous Diseases* of 1902, but I have not yet looked up that reference. Whether it is acrodermatitis continué, I do not know. There is nothing here to suggest that, for the lesions will come out in a whole group in one day, last a few days or weeks and then clear up. The patient always responds to arsenic given by mouth. She is at present taking six doses a day of arsenic in the form of pills and is practically free from the disorder. I intended to place a question mark after the diagnosis, not insisting on it, but the case as presented today has not done itself justice.

CUTIS VERTICIS GYRATA. Presented by DR. M. H. EBERT.

The patient, a man, aged 34, presents an abnormality of the scalp which has been present since birth, but which was noticed definitely by the patient seven years ago. During the past four months he has been conscious of a tremor of

his head and that he becomes "nervous" at times. His general health is good; the family history is irrelevant. The patient's height is 6 feet, 4 inches (193 cm.), his weight, 240 pounds (108.8 Kg.).

DISCUSSION

DR. E. A. OLIVER: It is interesting to recall that this is the third case of cutis verticis gyrata that has been presented this year. Dr. Stratton has recently published a good article on cutis verticis gyrata, and according to him this should be presented as a case in the form of that disorder.

The man complains of nervous symptoms and a feeling of vertiginous attacks. He has not been examined by a neurologist, but this is contemplated. The disorder evidently is associated with the nervous system, and I presume that the patient will later show signs of acromegaly. He has large hands and feet and further signs of that disease may develop.

DR. LESTER M. WIEDER: Etiologically I think cutis verticis gyrata may be divided into four types. One type is racial, occurring in certain primitive negroid races. The second, the nevoid type, shows the typical gross structure of cutis verticis gyrata, but histologically shows nevoid changes. The third, a post-inflammatory type, has been described as following various inflammatory conditions in the scalp. The fourth type is apparently a sign of disease of the pituitary gland, often associated with other signs of acromegaly, and in this group I think the present case falls. The patient said that he wears the same size shoes and gloves that he has worn for some years, but he is of larger stature than the average of his family. He is not fat, but of enormous stature with an unusually large bony framework. I think this, in addition to the roentgenographic findings in the skull, verify the diagnosis. If roentgenograms of the hands are made, I think the so-called "sheaf of wheat" changes often noted in the distal phalanges of the hands will be found. He has noticed no changes in his vision, but has signs of disturbance of the central nervous system, as evidenced by the marked tremor of his head. I was interested to note that the tumor in this case impinged on the posterior clinoid processes. In the case I showed about a year ago the changes involved the anterior clinoids, probably producing pressure on the optic chiasm. This difference in location of the tumor probably accounts for the fact that no changes have been observed thus far in the man's vision, while the other patient whom I refer to now has lost almost completely the vision in one eye.

DR. M. H. EBERT: I wish to apologize for presenting the case so incompletely worked up, but we saw the patient for the first time two days ago. We will get the neurologic findings and further roentgenographic findings before publishing the report.

NOTE.—A complete analysis was made in the neurologic department of the Central Free Dispensary. The eyegrounds were normal. There was no disturbance of the basal metabolic rate. The roentgenograms suggested some erosion of the posterior clinoid process. The sella turcica seemed enlarged in this region. The Wassermann reaction of the blood was negative.

Tentative diagnosis: Functional emotional disturbance, with Parkinson's disease to be ruled out.

LICHEN PLANUS WITH FATTY INFILTRATION. Presented by DR. E. P. ZEISLER and DR. M. R. CARO.

A woman, aged 52, was first seen at the Mandel Clinic two years ago, when she stated that an eruption of the skin had been present without much change for about twelve years. In appearance it was about the same then as at the time of presentation. There was no pruritus. Histologic examination of a lesion removed from the back at that time showed obliteration of the epidermis and marked changes in the upper part of the corium. The uppermost portion of the corium was filled by densely packed infiltrate, consisting largely of lymphocytes

and fewer macrophages, and showed great vascular dilatation. Immediately beneath this was a wide layer of cells filled with fat, as demonstrated by the sudan III stain.

Marked improvement occurred following a course of eight treatments with roentgen rays (one fourth of an erythema dose once a week) and fifteen weekly intramuscular injections of bismuth. The lesions became less inflammatory and more atrophic, and in many a more marked yellowish hue was observed. The patient then stopped treatment and did not return until recently, when many of the lesions had resumed their original appearance.

Examination reveals over the lumbar and sacral spine and on the abdomen many violaceous-red, slightly depressed, irregular, papular lesions, varying in size from that of a pea to that of a dollar and covered by a thin, whitish, dry, adherent scale. Some of the lesions are definitely yellowish, and there are many atrophic scars. Silvery striae are on the mucosa of the right cheek.

LICHEN PLANUS AND PARAPSORIASIS. Presented by DR. E. P. ZEISLER and DR. H. C. SCHORR.

Mr. W. C., aged 63, from the Mandel Clinic, presents two distinct types of lesions of the skin. For the past fifteen years an eruption has been present which at times causes marked pruritus. It consists of many elevated, violaceous-brown, angular papules the size of a pinhead and slightly larger on the flexor surface of the forearms and the anterior surface of the leg; over the lumbar spine are many larger lesions which are bright reddish and covered by thin, adherent dry scales. No lesions are present on the penis or in the mouth. Histologic examination of a papule removed from the back showed the changes of lichen planus.

About six months ago other lesions appeared on the arms and soon involved the body and extremities. These are superficial, circumscribed, reddish-brown, scaling patches, ranging in size from that of a dime to that of the palm of one's hand, which are not pruritic and which do not show improvement after treatment with 2 per cent ammoniated mercury ointment.

Histologic examination revealed a thin scale, a discontinuous granular layer and a basal layer broken in one place by the infiltrate, enlarged papillae containing an infiltration of lymphocytes and macrophages and perivascular infiltration in the subpapillary layer.

LICHEN PLANUS WITH ALOPECIA AREATA IN A CHILD. Presented by DR. J. H. MITCHELL.

A girl, aged 9, has lichen planus of one month's duration. Alopecia areata has been present for one year. There is no history of ingestion of drugs. The general health of the child is good, but the mother states that the patient is somewhat nervous.

This child was the sister of the boy, aged 3½, with lichen planus, who was presented by Dr. Nomland and Dr. Mitchell at the February meeting of the Society.

DISCUSSION

DR. M. H. EBERT: I wish to say a word in regard to Dr. Mitchell's cases, the two children in the same family. When the first child was presented there was some question as to the diagnosis of lichen planus. Now Dr. Mitchell has kindly succeeded in communicating this disease to another member of the family and proved it to be lichen planus. I very much appreciate the opportunity of seeing these patients.

DR. DAVID LIEBERTHAL: The cases of Dr. Mitchell are examples of familial lichen planus. Its occurrence is rare, if we consider that up to about 1920 about thirty cases were recorded and not more than about a dozen since. I have observed familial lichen planus twice during my practice—once, in a mother and son, and another time, in a brother and sister.

DR. FRED SCHMIDT: With reference to the case presented by Dr. Zeisler and Dr. Caro, the changes under the microscope are what we might expect. The fact that we do not always find the typical picture under the microscope, but a bizarre picture, has been brought out by Kaufmann-Wolff, who reported some cases that had every appearance clinically of being lichen planus, but that presented a tuberculous structure under the microscope. She called these lichen planus tuberculids.

DR. M. R. CARO: In the case of lichen planus with lesions on the back, presented by Dr. Zeisler and me, there was nothing in the histologic structure to suggest tuberculosis. Under treatment, as the lesions became pale, the yellowish tint became more prominent and some lesions became quite yellow while others showed atrophic scars.

DR. RUBEN NOMLAND: Do you consider it a neutral fat rather than cholesterol fat?

DR. M. R. CARO: The only examination for fat that was made here was by the sudan III stain.

DR. E. P. ZEISLER: I think it is always interesting to see two cutaneous disorders present in the same patient, as in the little girl presented by Dr. Mitchell.

DR. J. H. MITCHELL: To me the interesting thing in connection with my cases is that the first child is only 3½ years old and the sister, shown today, is 9, with the same disorder and also alopecia areata.

SCLERODERMA (UNUSUAL DISTRIBUTION). Presented by DR. THEODORE CORNBLEET and DR. EARLE R. PACE.

N. K., aged 66, a laborer, born in Luxemburg, was first seen two weeks ago, with a lesion on the nape of the neck which began one year ago.

The lesion involves the entire face, scalp and neck, with sufficient hardness and tightness to produce interference with speech and mobility. The trunk above the waist and the upper arms are almost entirely covered except for a peculiar sparing of the areas on which the suspenders rest. The hands and forearms are irregularly affected but there is no suggestion of atrophy of the fingers or of Raynaud's syndrome. The patient denies rheumatic pains or symptoms in the hands at any time.

Since trauma and pressure are sometimes implicated as etiologic factors, this patient is shown for speculation as to the cause of the accurate sparing of the areas under the suspenders.

DISCUSSION

DR. RUBEN NOMLAND: In the group of cases reviewed by Dr. O'Leary and myself there were two or three in which we could not decide whether to call the condition extensive morphea or generalized scleroderma and I think this case falls in that group. On the abdomen is a lesion with a violaceous border, which to me is indicative of what we ordinarily call morphea. However, the general hard texture of the face is that of generalized scleroderma, so I think that this should be included in the group in which to distinguish between morphea and generalized scleroderma is almost impossible.

DR. LESTER M. WIEDER: I think an interesting feature in this case is the total lack of lesions over the shoulders where the suspenders exert pressure on the skin, as if pressure had something to do with the absence of lesions in this area. This finding may provide a therapeutic hint in other similar cases, where constant mild pressure with a bandage might be employed on early lesions.

DR. E. P. ZEISLER: We had a patient who used a reducing belt, and typical scleroderma developed right in the line of the belt.

DR. J. H. MITCHELL: On further investigation it might be found that this man has never worn suspenders.

DR. THEODORE CORNBLEET: I think this is a case of scleroderma and not morphea. Morphea is said to result sometimes from pressure or trauma, but in this case the areas of pressure are spared. Another thing that occurs to me is that it may not be a matter of pressure; some chemical, perhaps a dye in the suspenders, may be responsible for these areas being spared.

PHILADELPHIA DERMATOLOGICAL SOCIETY

R. L. GILMAN, M.D., *Secretary*

Friday, May 19, 1933

F. D. WEIDMAN, M.D., *President*

HYPERPIGMENTATION FOLLOWING CHEMICAL DERMATITIS. Presented by DR. E. F. CORSON.

J. B., a white man, aged 33, presents a dermatitis of the exposed parts following two and one half hours' exposure to ethyl gasoline, which caused an illness of one week. The dermatitis appeared the morning after the accident. Two months later there developed on the face and hands a freckle-like eruption which has persisted. The blood count is normal. There is no blue line on the gums. The patient feels well.

DISCUSSION

DR. E. F. CORSON: Dr. Beerman suggested that ultraviolet therapy be tried on the parts which have not been affected by gasoline dermatitis in order to see what effect is produced and whether other agencies can bring about the same kind of pigmentary change.

MACULAR ATROPHY OF THE SKIN (ANETODERMIA OF SCHWENINGER AND BUZZI). Presented by DR. T. BUTTERWORTH.

D. H., a white girl, aged 11 years, presents an eruption in which the lesions first appeared as soft, circumscribed, bulging elevations the color of the skin or slightly pigmented. They grew to the size of a dime and in places tended to be grouped. They were itchy only when the patient was "overheated." These herniated lesions disappeared when the skin was stretched. Later the lesions become flat or slightly depressed and whitish. When the skin is relaxed, the surface of the atrophic areas becomes folded. There is no history of an antecedent eruption of any kind, and so far as can be ascertained, the process has always been clinically noninflammatory. The cutaneous condition appeared when the child was 6 years old. It is said to have appeared first on the shoulders and the upper part of the chest and later to have involved the arms. At the age of 5 the child was burned by an oil stove; this burn cleared up entirely in a day or two. Otherwise the past medical history presents nothing of interest. The Wassermann test of the blood is negative. There is no evidence of tuberculosis. The child has had gonorrheal vaginitis.

DISCUSSION

DR. C. S. WRIGHT: I believe there is no doubt about the diagnosis in this case. Cases of this disease are extremely rare; often none are seen in several years.

DR. R. L. GILMAN: I believe that there is a possible relationship between this condition and Recklinghausen's disease. Is there anything in the history of the family to point to a congenital origin?

DR. T. BUTTERWORTH: The family is separated. Four children are under the care of the Children's Aid Society. I think that the father is a habitual drunkard, and it is uncertain whether the mother is dead or in a home.

SCLERODERMA. Presented by DR. A. STRAUSS.

R. M., an Italian, aged 40, had pains in the joints with fever about four years ago; shortly afterward his fingers stiffened. The condition seen at present developed within a period of about two years. Treatment by vaccine and by baking have not brought about any improvement. For the last six weeks the patient has received three intravenous injections of sodium citrate each week, and in that time has shown marked improvement. Roentgenograms have never revealed a condition to account for the telangiectasia observed on the face and trunk.

SCLERODERMA. Presented by DR. A. STRAUSS.

Mrs. M., aged 43, was first seen by me in September, 1930. For nine years before that time she received various treatments, with no improvement. The condition is of twelve years' duration and began on the tips of the fingers. When she was first seen, the jaws were practically locked, the fingers were stiff and ulcerated, and the general condition was poor. She has been given foreign protein therapy (typhoid vaccine) every fifth day for six weeks and has shown marked improvement. Gangrene developed in one finger of the right hand, and cervical sympathectomy was performed by Dr. Shallow. The gangrene has cleared up. Since the operation the patient has been receiving sodium citrate intravenously three times a week; she has shown steady improvement, with a gain in weight.

DISCUSSION

DR. A. STRAUSS: I am presenting these two patients, especially the latter one, because at the March meeting I commented on the use of typhoid vaccine for treatment. Since then the latter patient has shown marked improvement.

TUBERCULOSIS OF THE HYPODERM (WENDE); LICHEN SCROFULOSUS. Presented by DR. D. M. PILLSBURY.

T. J., a colored man, aged 35, presents a grouped lichenoid eruption over the flanks and upper part of the legs, with small nodules on the forearms and legs. The nodules seem to move with the skin. Physical examination revealed limited expansion and tactile fremitus on the right side of the chest. There was some impairment of resonance over the right apex. There is an annulopapular lesion on the left side of the forehead.

The Wassermann test of the blood was negative on three occasions. The blood count showed slight secondary anemia with eosinophilia of 11 per cent. A roentgenogram of the chest showed a marked homogeneous density of the adjacent pulmonary tissues. The mediastinum appeared to be fixed. There was some thickening of the interlobar pleura on the right side. A lateral view of the neck demonstrated a soft tissue shadow in the upper portion, superimposed over the upper cervical vertebrae; it was thought to be a parotid gland. Biopsy of one of the nodules on the left forearm showed a circumscribed, round cell infiltration with many giant cells, in the hypoderm.

The patient was well until early this year, when he had an attack of mumps. After this attack he felt weak, and from January to April lost 30 pounds (13.6 Kg.). The eruption was first noticed in February, 1933.

PARAPSORIASIS OR SYPHILIS (?). Presented by DR. E. F. CORSON.

A. H., a woman, aged 41, presents an eruption which in December, 1932, appeared suddenly on the groin, around the waist and on the arms and the neck. There is itching at times when she is excited. She has taken phenolphthalein in the form of a vegetable pepsin and bile salts.

DISCUSSION

DR. V. C. GARNER: I should make a diagnosis of the neurosyphilid of Unna.

DR. C. S. WRIGHT: I too considered the diagnosis of a syphilid, but I thought that this had been ruled out. Other diagnoses which I considered were the premycotic stage of mycosis fungoides, which this condition somewhat suggests, and parapsoriasis. I should hesitate to commit myself at this time.

DR. J. B. LUDY: I thought that the case might be one of syphilis, except for the degree of inflammation present. One might consider a diagnosis of widespread granuloma annulare.

DR. E. F. CORSON: The patient came to the hospital two days ago, and we did not make a Wassermann examination of her blood. We were afraid of frightening her if we took a biopsy specimen before the meeting.

DR. V. C. GARNER: The neurosyphilid of Unna is really a late, recurrent, secondary syphilitic lesion; I made that diagnosis because of the annular appearance, induration and polychromatic character of the lesions which, I believe, are quite suggestive of this form of syphilis. I shall be surprised if the Wassermann test is other than positive.

SUBSEQUENT NOTE.—The Wassermann test was positive.

LYMPHATIC LEUKEMIA. Presented by DR. J. B. LUDY.

E. D., a colored man, aged 39, has complained of a generalized itching for the past year; there have been intermittent appearances of cutaneous infiltrations varying in size from 1 to 4 inches (2.5 to 10.16 cm.) in diameter. Subjective symptoms began five years ago and were for the most part those of asthenia. Cervical and inguinal lymphadenitis have been present the last year. He has had eight roentgen treatments, given at monthly intervals, during the past year. The last treatment was given two months ago. The white blood count has been as high as 140,000. At present the count is 38,000, with 85 per cent lymphocytes.

DISCUSSION

DR. J. B. LUDY: This patient came to us two years ago with subjective symptoms of pruritus but with no signs of infiltrations. The total symptoms and signs consisted of general lymphadenitis and infiltrated plaques on the trunk associated with itching. The white blood count was 140,000, with 85 per cent lymphocytes. A diagnosis of lymphatic leukemia was made. Dr. Knowles has in mind a treatment which promises good results. The count is lower now, and the infiltrated areas have disappeared. It would be difficult to make a diagnosis at this time.

DR. F. C. KNOWLES: I wish to start indirectly with a topic that does not seem to pertain to the subject of leukemia. I think that one of the most interesting clinics in the hospital here at the present time is the clinic for patients with tumors. It has been endowed by Mr. du Pont. In that clinic we carry on all kinds of investigation; a great deal of that investigation deals with observation of the heavier metals, particularly lead and manganese. Recently at the Lankenau Hospital, several patients with leukemia have been treated by the lead and roentgen method. It has been an extremely interesting combination in that the patients responded only partially to the treatment when the roentgen rays were used and virtually not at all when only lead was used; but the combination of injections of lead followed by irradiation has given brilliant results. The improvement has been so marked that in some of the cases of leukemia in which the treatment was given the blood count has been reduced from more than 250,000 white cells, including a large percentage of lymphocytes, to normal, with very few injections followed by a few roentgen treatments. Of course, that is not a cure; it is merely temporary improvement, because in a few months the leukocytes again increase. It is, however, an extremely interesting observation. We have obtained the cooperation of the members of the clinic for patients with tumors in the treatment of the patient Dr. Ludy has presented. Unfortunately, the treatment is not quite as suitable as it was

formerly, because the blood count has been reduced somewhat, although the lymphocytes still remain of an unequal proportion, somewhat over 80 per cent. It is, however, an interesting experiment, because in our other series the results have been brilliant although only temporary. These results give rise to the question: Are there not other diseases of the skin which might be benefited either temporarily or permanently by a combination of lead and roentgen therapy? The treatment might be tried on one disease in which unfortunately the results have practically always been fatal, namely, mycosis fungoides. That condition might possibly be helped by an injection of a heavy metal followed by roentgen therapy.

DR. ELIZABETH SCHAULL: Is not the lead active chiefly because the metabolism of the tumor leads to concentration of the heavy metal in the tumor? I suppose, then, that diseases in which an increased metabolism is present would be benefited by such treatment.

CLEVELAND DERMATOLOGICAL SOCIETY

J. R. DRIVER, M.D., *Reporter*

Regular Meeting, May 25, 1933

SIDNEY LITTMAN, M.D., *Presiding*

TUBERCULOUS ULCER OF THE TONGUE (SYPHILIS). Presented by DR. H. F. DE WOLF.

A. H., a white man, aged 61, was admitted to the service of Dr. Cole and Dr. Driver at City Hospital on May 19, 1933, complaining of an ulcer on the tip of the tongue and a persistent cough for the past three months. He had been a patient in the hospital in September, 1928, at which time he had received treatment for seronegative primary syphilis, and had received a total of 4.2 Gm. of arsphenamine and twelve inunctions of mercury. No subsequent antisyphilitic treatment had been received. On examination there was situated at the tip of the tongue a punched-out, shallow ulcer about 1 cm. in diameter, with anemic granulation on the surface. The area apparently was irritated by the sharp edges of the lower, central incisors. There was considerable inflammatory areola surrounding the ulcer, but practically no induration.

Moist râles were found at the apex of the right lung, anteriorly and posteriorly. The liver extended about 6 cm. below the costal margin. The surface was smooth, and there was no tenderness. The pupils reacted sluggishly to light and in accommodation. The patellar reflexes were absent. Smears of sputum revealed many tubercle bacilli. Smears from the surface of the ulcer revealed no tubercle bacilli. The Wassermann test of the blood was strongly positive. The examination of the spinal fluid gave strongly positive results and showed 6 cells and a colloidal gold curve of 5554321000. Roentgenograms of the chest revealed chronic fibroid tuberculosis, with a cavity 6 cm. in diameter in the upper lobe of the right lung. The aorta showed marked dilatation.

A section taken for biopsy showed a layer of stratified squamous epithelium, corium and connective tissue. The corium and connective tissue were densely infiltrated with numerous endothelial leukocytes and frequent polymorphonuclears. In numerous areas these were arranged in foci surrounding necrosis and fibrin, and were associated with giant cells of the Langhans type. The giant cells were immediately surrounded by endothelial leukocytes and then by a collar of lymphocytes in young connective tissue. At one point the epithelium was eroded, having a surface composed of chronic granulation tissue. The epithelial border did not show malignant changes. Tuberculous organisms were found. A pathologic diagnosis of chronic granuloma and tuberculosis was made.

DISCUSSION

DR. JOHN A. GAMMEL: This case reminds me of one that we saw here approximately five years ago with a similar lesion in the same location. In that case the man was a shoemaker and was in the habit of holding nails in his mouth. On further study of the case it was found that he had renal tuberculosis.

DR. H. N. COLE: The anemic appearance of the ulcer is more or less characteristic of tuberculosis. However, from a clinical standpoint, one would necessarily have to consider the possibility of a gumma, in view of the syphilitic findings. My impression, however, is that the lesion is tuberculous.

DR. J. R. DRIVER: In most instances of tuberculous infection of the mucous membranes of the mouth, there is definite evidence of trauma determining the site of inoculation, as we see in this patient, and as no doubt determines the location also in the case that Dr. Gammel cited.

DR. H. F. DEWOLF: It is interesting to note that this man, who had been treated for seronegative primary syphilis and in whom the exact amount of treatment given is known, should now show active syphilis with involvement of the central nervous system. Instances of this kind should impress on us the fact that early syphilis requires long treatment.

A CASE FOR DIAGNOSIS. Presented by DR. H. F. DE WOLF.

N. S., a Negress, aged 19, from the service of Dr. Cole and Dr. Driver at City Hospital, has been under treatment for pulmonary tuberculosis in the sanatorium of the hospital since March, 1932. About April 10, 1933, an eruption on the chest developed, associated with considerable pruritus, which gradually spread, involving the face and the upper two thirds of the torso, with lesions also in the mouth and on the vulva. There was no history of oral medication. The patient had received ultraviolet irradiation.

Examination revealed an eruption on the face, forehead, neck, upper two thirds of the torso, mouth and vulva, consisting of vesicles and small bullae, with areas of depigmentation at the site of former healed lesions. Many of the vesicular lesions rose from skin that was apparently normal. Nikolsky's sign was present. The patient's weight was 104 pounds (47.2 Kg.). She was afebrile. Pneumothorax on the left side showed a fluid level at the sixth rib. There was no cough or sputum. The Wassermann test of the blood was negative. The blood count revealed: red cells, 4,250,000; white cells, 8,500, and hemoglobin, 85 per cent. The differential count revealed 7 per cent eosinophils, but was otherwise normal. Since May 19 the patient had received solution of potassium arsenite internally with no apparent improvement. The urine was negative for albumin.

DISCUSSION

DR. H. J. PARKHURST: One must consider the possibility of erythema multiforme, dermatitis herpetiformis and pemphigus. The pruritus and the tendency of the lesions to heal without spreading into the periphery lead me to favor a diagnosis of dermatitis herpetiformis, although further study of the case would be necessary before I came to any definite conclusion.

DR. E. W. NETHERTON: I should be in favor of a diagnosis of erythema multiforme. The fact that the patient has not recently lost weight and appears to be in fairly good physical condition would, to my mind, be against a diagnosis of pemphigus. Some of the healed lesions show some tendency to atrophy and scarring, somewhat suggestive of healed dermatitis herpetiformis.

DR. J. R. DRIVER: My general impression is that the case is one of erythema multiforme rather than of pemphigus. The pruritus would be in favor of this diagnosis. Further study is indicated.

DR. H. N. COLE: Aside from the lesions found on the vulva and mouth, the lesions are confined entirely to areas that have been treated with ultraviolet rays from the mercury vapor arc in quartz, indicating perhaps that there is a photosensitive factor.

LYMPHOGRANULOMA INGUINALE. Presented by DR. H. F. DE WOLF.

P. M., a Negro, aged 26, from the service of Dr. Cole and Dr. Driver at City Hospital, complains of a swelling in the groins of two weeks' duration, associated with malaise, chilly sensations and night sweats. There is no penile lesion or history of a urethral discharge. Five years previously he contracted syphilis and received antisyphilitic treatment over a period of one year.

Examination revealed in the inguinal region a large swelling 5 by 10 cm. in diameter. On palpation the lesion was firm. The glands were matted together, with the overlying skin attached. There was no tenderness or area of fluctuation. The right iliac group of glands was enlarged. The Wassermann test of the blood was negative. The Frei test was strongly positive with two different antigens.

No therapy has been given except rest in bed. The temperature has been between 37 and 39 C. (98.6 and 102.2 F.).

DISCUSSION

DR. SIDNEY LITTMAN: I should like to ask Dr. De Wolf at what stage the disease becomes afebrile.

DR. H. F. DE WOLF: This is the sixty-ninth case of lymphogranuloma inguinale that my associates and I have observed since we have been using the Frei test. This does not include, however, the cases showing the anorectal syndrome and esthiomene seen in women. In our experience the disease becomes afebrile at the end of about three weeks.

DERMATOSIS PAPULOSA NIGRA (CASTELLANI). Presented by DR. C. L. CUMMER and DR. C. G. LA ROCCO.

R. C., a Negro, aged 55, from the department of dermatology of Charity Hospital, has an eruption on the cheeks, ears and back of the neck of three months' duration. The lesions are slightly elevated, the color of the surrounding skin and flattened on the top and have a somewhat polygonal base that averages from 1 to 3 mm. in diameter. A few of the lesions show evidence of excoriation, although the patient says that there have been no subjective symptoms. The Wassermann test of the blood is negative. No treatment has been applied.

A specimen taken for biopsy showed a small nodule of skin with a central ulcer and a marginal fragment of pigmented, stratified, squamous epithelium. The corium contained a number of sweat and sebaceous glands and an occasional hair follicle. Scattered through the corium, and especially numerous beneath the area of ulceration, were nests of irregular polyhedral cells, some of which contained considerable golden brown granular pigment. These cells were irregular in size and shape and showed mitotic figures. There was evidence of removal by cautery at the margins of the specimen, and the lesion did not appear to have been completely excised. A pathologic diagnosis of melanotic nevus was made by the pathologist at Charity Hospital.

DISCUSSION

DR. R. E. BARNEY: I thought that the lesions were rather deep-seated in the skin and were of a light pinkish color, in spite of the dark background. I should favor the diagnosis of lupus miliaris disseminatus facies.

DR. H. N. COLE: I have seen this patient previously through the kindness of Dr. Cummer, and have looked at the section. I believe that it is a characteristic case of dermatosis papulosa nigra, and, though I have not seen microscopic sections of this condition before, I believe that it is characteristic of the picture described by Castellani and Michael. I did not get the impression of tuberculosis, as suggested by Dr. Barney.

DR. H. J. PARKHURST: After inspecting the lesions and sections, I am rather inclined to agree with Dr. Barney.

DR. C. L. CUMMER: When I first saw this man I thought that possibly one argument against the diagnosis was the short duration of the disease. According to Castellani, tuberculous nevoid develops early in life. We shall make further studies of biopsy specimens.

ADENOMA SEBACEUM. Presented by DR. C. L. CUMMER and DR. C. G. LA ROCCO.

A. H., a Negress, aged 36, from the department of dermatology of Charity Hospital, presents numerous papular lesions on the nose and adjacent areas of the cheeks, varying in size from that of a pinhead to that of a buckshot. There is no inflammatory reaction. The lesions have been present since the age of 3. Histologic examination showed corium groups of closely crowded, hypertrophic sebaceous glands.

DISCUSSION

DR. H. G. MISKJIAN, DR. H. J. PARKHURST and DR. J. EDGAR FISHER agreed that the case is a typical case of adenoma sebaceum.

DR. C. L. CUMMER: The case was presented because this condition is rarely seen in a colored person.

XERODERMA PIGMENTOSUM. Presented by DR. H. F. DE WOLF.

I. S., a white girl, aged 9, from the service of Dr. Cole and Dr. Driver at City Hospital, presents on the face, neck and exposed parts of the upper extremities, small, lentigo-like brownish lesions; there is some tendency to keratotic formation in a few of the lesions on the face. The involved areas appear to be slightly atrophic. Otherwise the child is normal, well developed and well nourished. Three other children in the family have had no similar trouble, and there is no history of consanguinity.

DISCUSSION

DR. H. N. COLE: The fact that there is some evidence of atrophy and keratotic change favors a diagnosis of xeroderma pigmentosum of a mild type. This would rule out the diagnosis of lentigo in this case. With proper precautions, it will probably be a number of years before a serious degenerative change takes place.

BRONX DERMATOLOGICAL SOCIETY

THEODORE ROSENTHAL, M.D., *Secretary*

Regular Meeting May 25, 1933

ADOLPH ROSTENBERG, M.D., *President*

PITYRIASIS LICHENOIDES VARIOLIFORMIS ET ACUTA (SO-CALLED HABERMAN'S DISEASE). Presented by DR. HENRY SILVER.

I. G., aged 34, white and single, came to the clinic for cutaneous diseases of the Mount Sinai Hospital because of a recurrent dermatophytosis of the feet. The present eruption appeared suddenly on the face and extremities about three weeks ago, without prodromal symptoms.

Examination revealed a symmetrical eruption, fairly generalized, involving the face, upper extremities, abdomen, penis and thighs. The lesions were thickly set on the volar surface of the arms and thighs. On the thorax they seemed to follow the lines of cleavage. The character of the eruption was polymorphous, with the papular element predominating. The lesions were macular or papular, round or oval and ranged in size from that of a pinhead to that of a lentil; they were

brownish, and a few were distinctly hemorrhagic. A great number of the lesions showed central necrosis or were covered with a darkish crust. The lesions near the axillary folds were flat, papular and yellowish brown, and were covered with a tiny scale. Similar scaly lesions were seen on the right eyebrow. There were no lesions in the mouth. The Wassermann test of the blood was negative.

A papular lesion removed from the upper part of the arm for histologic examination and studied by Dr. Peck revealed the following: The epidermis was flattened. There was marked intercellular and intracellular edema with marked hyperkeratosis and scattered parakeratotic points. In places leukocytes had invaded the epidermis, but no formation of micro-abscesses could be disclosed.

The papillary layer showed marked edema, dilatation of the vessels and marked perivascular infiltration of lymphocytes. Similar perivascular infiltrations were seen in the middle layer of the cutis. The histologic findings conformed with the clinical diagnosis of pityriasis lichenoides varioliformis.

DISCUSSION

DR. P. GROSS: This is a typical case. The condition developed acutely. The patient has lesions of various types, and I see also the characteristic varicelliform lesions. Cases of this sort clear up completely or may develop into parapsoriasis. It is interesting to see sporadic cases. I do not think that they are the rule. They appear suddenly and sporadically, like measles or influenza, and I suspect that they have some relation to influenza.

DR. HENRY SILVER: It is difficult to understand why the disease is ascribed to Haberman. Long before his time, cases were reported by Mucha and others from Vienna, and, as Dr. Gross pointed out in his excellent study of the disease (ARCH. DERMAT & SYPH. **23**:33 [Jan.] 1931), a case was recorded by Swedish authors in 1905.

I fear that we cannot agree on the term pityriasis lichenoides varioliformis et acuta. The conception of parapsoriasis conveys a different picture, for it is eminently chronic and markedly resistant to therapy. In these cases we have an acute eruption which frequently disappears in the course of a few months.

LEUKODERMA CENTRIFUGUM ACQUISITUM (SUTTON). Presented by DR. THEODORE ROSENTHAL.

R. B., aged 17, born in Porto Rico, has had spots on his body for the past four or five years. During this time, there has been no apparent change in the lesions.

On the left flank are three grouped areas, ranging in size from that of a dime to that of a silver dollar; they are oval or round, and there is absence of pigment. In the center of the depigmented areas is a dark brown, maculopapular lesion, about 2 mm. in diameter.

There are a few other, though smaller, lesions scattered over the back and in the right supraclavicular region.

DISCUSSION

DR. ADOLPH ROSTENBERG: Can any one explain why the pigmentation gathers in the center of the lesion?

DR. S. PECK: I think that we have no authority for calling this condition leukoderma. In leukoderma the physiologic ability to form pigment is retained. The only way in which this can be proved is by the reaction to dioxyphenylalanine. Leukoderma is usually preceded by an inflammatory process or is purely mechanical. In the depigmentation observed in pityriasis versicolor, the scales act as a filter to sunlight, but the deeper layer is pigmented. In other cases an active toxic condition is supposed, the pigmentation remains temporarily in abeyance, and leukoderma then means a transitory loss of function.

I have not performed experiments with this group of patients. The condition in this case looks like an ordinary nevus. On the back of the neck there is a pigmented nevus. I am not so sure of the lesions in the center, but they also resemble nevi.

DR. HENRY SILVER: Interesting as Dr. Peck's theoretical remarks are, I cannot agree with his conception of the central spot as a nevus. The central pigmented spot is a vital part of the clinical picture of leukoderma centrifugum acquisitum as described by Sutton. It seems that in a given area the entire pigment accumulates in the center, forming a macular or papular brownish spot, surrounded by a white, depigmented area. The process that takes place in the vitiliginous spots is termed *Verschiebung*.

DR. P. GROSS: This discussion is interesting to me, because I have always objected to the term leukoderma. I should like to discuss one point mentioned by Dr. Peck. Does he think that there must be a real inflammatory basis for leukoderma? Clinically, there are two varieties of leukoderma; leukoderma verum and leukoderma spurium. I am strongly inclined to believe that leukoderma does not necessarily follow inflammatory lesions when they are more deeply seated. This is explained by the trophic changes in the nerves and in the blood vessels, but I do not think that it has been agreed that a toxic effect takes place.

DR. S. FELDMAN: The feature that particularly interests me is the central spot. One is accustomed to see a pigmented spot without elevation in cases described as leukoderma centrifugum acquisitum. In this case there is a small, decidedly nevus-like lesion which cannot be diagnosed as *Verschiebung;* most likely, as Dr. Peck stated, it is a nevus. A biopsy should be made of the central spot. Only by this means can we obtain definite information.

DR. THEODORE ROSENTHAL: The central spot may be a macular or a papular lesion. If the phenomenon of *Verschiebung* takes place, that the condition is not a nevus but that some pigmentary mechanism is involved would be proved.

ULCUS DURUM. Presented by DR. ADOLPH ROSTENBERG.

The patient states that in the summer of 1931 he had three soft chancres on the penis. Repeated Wassermann tests at that time were negative, but a dark-field examination for spirochetes gave positive results. The patient then received twelve injections of neoarsphenamine and eighteen of mercury. He had no clinical symptoms in the interim.

The present trouble began ten days ago, after a debauch of drinking. The patient says that he has not suffered traumatism or had extragenital intercourse, but states that he had coldsores on the lips.

On examination, the center of the lower lip was occupied by a swelling the size of a large cherry; it was slightly ulcerated and markedly indurated, but it was not painful. There was no marked adenopathy. Repeated dark-field examinations gave negative results. The reaction to the Kahn test was 3 plus; the Wassermann test was negative. There were no secondary manifestations.

DISCUSSION

DR. P. GROSS: The lesions on the lips are typical primary lesions. In favor of their being primary lesions is the positive Kahn test in the absence of a positive Wassermann test. This often happens in primary syphilis. I should suggest a dark-field examination of the material punctured from the lesion of the lower lip. It is important to ascertain whether there are spirochetes in the lesion. If there is a record of a previous lesion on the penis, the condition would be a clearcut instance of reinfection.

DR. HENRY SILVER: I am not inclined to make a diagnosis of primary syphilis, which in this case would mean reinfection. There is no definite history that the patient had syphilis in 1931. The clinical character of the lesion and the mild swelling of the glands also speak against chancre of the lip. A tremendous amount of swelling of the glands is usually found.

DR. CHARLES WOLF: The criteria required for a diagnosis of reinfection are absent in this case. The patient was not observed by the presenter at the outset of the infection. The lesion on the lip seems fairly typical of an initial lesion. The patient has also a bilateral adenopathy. The question is: Is he suffering from a simple infection with a lighting up of the old syphilis, or is he suffering from primary syphilis of the lip? My tentative diagnosis is primary syphilis.

DR. S. FELDMAN: My impression is that this is a primary lesion. There is a deep infiltration on the lower lip, which is not the hard, superficial infiltration of a chancre. I do not think that it is a reinfection.

DR. M. UMANSKY: From the review of the literature in the *Handbuch*, one gets the impression that not one case of reinfection has been proved, but that most of the cases are those of superinfection. The patient is not in the primary stage of syphilis. The lesion of the lip could be regarded as a superinfection.

DR. THEODORE ROSENTHAL: When the patient first came to our clinic, he presented a lesion on the lower lip which was accompanied by a few enlarged glands on the right side. The clinical picture is unchanged. I have obtained a great deal of clear serum on three successive dark-field examinations; if spirochetes had been present, they would have been found. None was seen. I agree with Dr. Feldman as to the morphology of the lesion. There is too much edema. The findings of the blood tests, however, are suggestive of primary syphilis, because in early syphilis the Kahn and precipitation tests will give positive reactions more frequently than will the Wassermann test. It is extremely difficult to offer a positive diagnosis now.

A CASE FOR DIAGNOSIS. Presented by DR. GEORGE J. SPINNER.

S. D., aged 53, a married man, born in Russia, was a patient at the Lebanon Clinic for allergic conditions from July, 1931; he was treated for asthma. In January, 1933, he was referred to the clinic for cutaneous diseases because of the development of a number of lesions on various parts of the body.

Examination revealed crusted lesions on the pubis, scrotum and perineum; they were itchy, as evidenced by the numerous scratches and points of bleeding. There were many leukodermic spots about the genitalia. A circinate, brown, slightly scaling and mildly itching eruption, varying in size from that of a pea to that of a silver dollar, was symmetrically distributed on the legs. The lesions of the scalp and the ear resembled seborrheic eczema.

The laboratory data were as follows: The Wassermann test of the blood was negative. The urine showed a trace of albumin and no sugar. Examination of the blood showed: hemoglobin, 78 per cent; red cells, 3,810,000; white cells, 8,600; polymorphonuclears, 70 per cent; lymphocytes, 28 per cent; eosinophils, 1 per cent; mononuclears, 1 per cent. Biopsy showed an infiltration of round cells, uniform in size and structure. According to Dr. Satenstein, however, there was a possibility of leukemia cutis or mycosis fungoides.

DISCUSSION

DR. E. KELLEY: My diagnosis is mycosis fungoides from the clinical appearance and the report at biopsy.

DR. I. LASHINSKY: As the histologic findings are not characteristic, I should like to suggest a diagnosis of erythema elevatum diutinum. A diagnosis of mycosis fungoides is not justified by the lesion on the chest, which shows a papular arrangement with a clear center.

DR. C. LERNER: I should lean toward a diagnosis of tinea with a possible trichophytid. There are small areas on the legs, palms and axillae that look like lesions of trichophytosis. One of the lesions resembles a positive reaction to the trichophytin test.

DR. M. UMANSKY: I think that a diagnosis of leukemia cutis can be excluded because of the normal blood picture and because of the clinical picture. On the other hand, it is possible that the condition is one of mycosis fungoides.

DR. CHARLES GREENHOUSE: I agree with Dr. Kelley that this is a case of mycosis fungoides. The multiform lesions, some of which superficially resemble pityriasis rosea, have much the appearance of mycosis fungoides.

DR. V. A. H. CORNELL: After a careful examination of all of the lesions, I favor a diagnosis of parasitic eczema.

PSORIASIS LINGUAE (?). Presented by DR. ADOLPH ROSTENBERG.

The patient has had the lesion on the tip of the tongue for six weeks. He has suffered from psoriasis since 1918. There are psoriatic lesions on the nails, scalp and lower limbs. There is a smooth, slightly reddish, somewhat depressed oval patch near the tip of the tongue, in the midline about ¾ inch (2 cm.) in diameter. The lesion is sharply marginated and has a grayish border. Papillae are present but are somewhat reduced in size. There is slight discomfort at times, when the patient masticates. The Wassermann test of the blood was negative. There is no history of the ingestion of drugs.

DISCUSSION

DR. L. CHARGIN: I do not think that any one can make a diagnosis of psoriasis from the lesion of the mucous membrane alone. Many dermatologists believe that this type of psoriasis does not exist. Because of the solitary patch on the tongue, one cannot say that the condition is one of psoriasis. A possible proof of psoriasis of the mucous membrane would be the simultaneous disappearance of the lesion on the tongue and those on the body.

DR. HENRY SILVER: It is comparatively easy to refute the statement that psoriasis of the oral mucosa does not exist. On the other hand, how can one account for the fact that a number of cases are recorded by competent observers? It is true that even if one sees patches on the tongue of a patient suffering from psoriasis, one does not think that the condition is psoriasis of the mucosa, because of the great rarity of the disease. In calling to one's aid the histologic picture, one does not find the structure that is characteristic of psoriasis. The lesions are frequently found at the same site as are the lesions of lichen planus, that is, opposite the second molar. This is an important point, because that part of the oral mucosa somewhat resembles ordinary skin, and consequently psoriasis might be expected there. In cases in which patches appear in the oral cavity and disappear at the same time as the eruption on the body, one might possibly assume psoriasis. In this case, the patient has had psoriasis for about seventeen years, but the lesion on the tongue has been present only six months. We can therefore exclude a diagnosis of psoriasis of the oral mucosa in this case.

LYMPHOGRANULOMA INGUINALE. Presented by DR. ADOLPH ROSTENBERG.

This patient has been shown previously and has had three positive Frei tests. The patient is presented to show the excellent effect of therapy, which consisted of fourteen injections of graded doses of milk.

DISCUSSION

DR. THEODORE ROSENTHAL: After twelve injections, there was a very satisfactory response to milk in this case. At first I used a nonspecific milk preparation. As this preparation was found to be too expensive, I substituted plain boiled milk. I started with injections of 3 cc. and then increased to 5 cc. and 6 cc. twice a week. I have had three cases in the past two years which were proved to be lymphogranuloma inguinale and which were cured or much improved by injections of milk.

DR. FRANK CROSS: I should like to ask whether any one has had experience in treating patients with this disease with antimony and potassium tartrate, and how the results compare with those obtained with foreign protein (milk).

DR. THEODORE ROSENTHAL: I am not in a position to answer that question. I have treated my patients only with milk and have had good results.

DR. D. BLOOM: I am treating six patients who have lymphogranuloma inguinale and have had good results with antimony and potassium tartrate. In one patient, after one injection, a large inguinal tumor was reduced to a third of its original size. In another patient whom I treated with a gold compound, a tumor of even larger size involuted to one half of its original size. I believe that antimony and potassium tartrate, so far as I can say, is better than gold preparations. I do not know very much about milk. Milk, as in other infections, probably would have a good influence. There has been until now no agreement as to the best treatment for lymphogranuloma inguinale. There are many remedies in use, some of which give satisfactory results.

DR. FRANK CROSS: Before this clinical entity was established, the lesions were occasionally mistaken for soft chancres. Many cleared up spontaneously. I do not want to discredit the findings of Dr. Rosenthal, but it is possible that many cases if left alone would clear up without treatment.

DR. H. V. MENDOLSOHN (by invitation): I studied the case with Dr. Rosenthal. The milk seemed to be specific in this case. The man gained 10 or 12 pounds (4.5 or 5.4 Kg.). This was probably not entirely due to milk, but the patient improved markedly under the treatment.

IDIOPATHIC HEMORRHAGIC SARCOMA (?). Presented by DR. I. LASHINSKY for DR. CHARLES WOLF.

F. M., aged 30, has been working in the Bronx Zoo for the past year and a half as a gardener's helper. About six months ago, while he was cleaning an old creek, his hands became infected. He presented himself at the clinic for surgical conditions, where several of the areas were incised. All of them healed, except one area on the dorsum of the left hand. Because of the latter, the patient was sent to the clinic for cutaneous diseases.

Examination revealed an infected, bluish-red area, the size of a quarter, and two adjacent ulcerations which were circular, pea-sized and sharply defined. There was a walnut-sized gland in the left axilla. On the soles and encroaching on the ankles were several pea-sized, peculiar, purplish, papular or nodular lesions. Some appeared to be arranged in a circular fashion. There were a few discrete lesions near the region of the ankle. This eruption has persisted for about three months.

A roentgenogram of the left hand showed atrophic changes in the bone of the index finger, but no definite evidence of a localized destructive lesion.

The Wassermann test of the blood was negative; the Kahn test was doubtful. The smear for tubercle bacilli was negative.

DISCUSSION

DR. C. LERNER: There are definite infiltrations in addition to nodular lesions, and they are the color of potassium permanganate. Kaposi's sarcoma is the diagnosis that suggested itself almost at sight. I do not think that the lesions on the hand represent the same condition. They appear to be some infection due to a fungus.

DR. V. A. H. CORNELL: If this is a case of Kaposi's sarcoma, then I have the wrong impression of the disease. The clinical character suggests to me a ringworm infection.

DR. I. LASHINSKY: I think that the lesions on the dorsum and the sides of the feet are typical of Kaposi's sarcoma. So far as the lesions on the hand are concerned, I may say that since the patient tends animals, it is possible that they are due to the ray fungus.

ERYTHEMA INDURATUM (?). Presented by DR. FRANK CROSS.

The patient, a woman, aged 58, has had the eruption on the legs for about eight years. The nodular lesions have been appearing in crops without subjective symptoms. There is no history of the ingestion of drugs. A diagnosis of erythema induratum was made, but the patient's age seems to speak against it. The eruption seemingly appeared immediately after the beginning of the menopause. Biopsy was refused.

DISCUSSION

DR. CHARLES GREENHOUSE: Because of the age and the coldness of the patient's extremities I should suggest an atrophic disturbance.

DR. H. KEIL (by invitation): The lesions are definitely nodular. Whitfield believes that there are two varieties of erythema induratum: one occurring in young women and one in older women.

DR. CHARLES WOLF: Periphlebitis nodularis necrotisans is my diagnosis. All of the lesions are on the anterior aspects of the legs with an inflammatory areola around the center. The woman has varicosities and stands on her legs a great deal.

DR. D. BLOOM: Because of the necrotic lesions, I should look for diabetes in this patient.

DR. FRANK CROSS: I doubt that we are dealing with erythema induratum. So far as Dr. Greenhouse's statement is concerned, I believe that the coldness of the extremities is an outstanding feature of erythema induratum. Dr. Wolf mentioned varicose veins. If the patient, has any, they are very superficial and cannot be made responsible for the condition.

AMERICAN DERMATOLOGICAL ASSOCIATION

Clinical Meeting, Chicago, June 10, 1933

FRED WISE, M.D., *President, Presiding*

ONYCHOGRYPOSIS. Presented by DR. MAX S. WIEN and DR. MINNIE O. PERLSTEIN, Chicago.

This case will be reported in full in a later issue of the ARCHIVES.

TUBERCULOSIS CUTIS: MULTIPLE SARCOIDS. Presented by DR. MICHAEL H. EBERT and DR. RUBEN NOMLAND, Chicago.

This case was presented before the Chicago Dermatological Society on Dec. 17, 1930 (ARCH. DERMAT. & SYPH. **23**:1003 [May] 1931).

About a year after the first presentation the patient had a sudden flare-up of the condition, with the appearance of new lesions and enlargement and spread of those already present, to the extent that some of the nodular lesions on the body eroded the overlying skin. The lesions regressed under treatment with arsenic in the form of pills.

The roentgenograms of the chest taken recently and those made about two years previously showed nothing abnormal. Roentgenograms of the hands likewise showed nothing abnormal. The patient was sensitive to a 1:1,000 dilution of tuberculin in 1930 and also recently, when the injection of 0.05 cc. of 1:1,000 solution caused a marked local reaction and a focal flare-up of the lesions, which lasted for three days. Examination showed slight thickening of one vocal cord.

The general physical examination and laboratory findings revealed nothing abnormal.

DISCUSSION

DR. HENRY E. MICHELSON, Minneapolis: I think that this is a unique type of tuberculosis of the skin which occurs in Negroes. I doubt that the continental observers are familiar with this particular picture. The lesions are miliary papules which remain fixed in size and consistency for long periods. The microscopic picture is that of sarcoid. The state of allergy evidently is not the same as in sarcoid in the white race.

DR. RUBEN NOMLAND, Chicago: We believe that the patient has hematogenic tuberculosis with a high degree of allergy that, so far as we can tell, corresponds pathologically and clinically to disorders that have been described in the literature as sarcoid. I believe that Boeck in several of his original cases described similar cases in the white race. Perhaps this particular manifestation in Negroes, being somewhat distinctive, is caused by the fact that the disease is more or less "new" to Negroes.

DR. JOSEPH V. KLAUDER, Philadelphia: The eruption is somewhat comparable to that in a case Dr. Weidman and I reported (Multiple Sarcoid-Like Granulomas of the Skin of Undetermined Nature: Report of a Case, ARCH. DERMAT & SYPH. **12**:171 [Aug.] 1925; Multiple Sarcoid-Like Granulomas of the Skin of Undetermined Nature: Supplementary Note; ibid. **13**:675 [May] 1926). Our patient presented a diffuse, generalized, papular, squamous, nodular eruption. The lesions were psoriasiform and infiltrated; some were annular, and others followed the natural lines of cleavage of the skin. In the course of twenty-one months, almost all of the lesions involuted, with scar formation, some with previous ulceration. The scars were soft and pliable, resembling the scars of syphilids. The case presented impresses me as representing the same type of tuberculosis of the skin of the Negro as that reported by Weidman and me, but in an earlier stage.

DR. FRED D. WEIDMAN, Philadelphia: Our patient had definite tuberculosis; acid-fast organisms were eventually demonstrated, and that may explain the positive allergy.

DERMATITIS PAPULOSA NIGRA. Presented by DR. RUBEN NOMLAND and DR. RALPH SCULL, Chicago.

A Negress, aged 42, presented a cutaneous disorder that had been present during her lifetime.

Examination showed dark brown, hyperpigmented, papular lesions, varying in size from that of a pinhead to that of a pea, on the face, chest and back. There was no subjective symptom. It was stated that fourteen children had a similar condition of the skin.

The Wassermann and Kahn reactions were negative.

DISCUSSION

DR. JEFFREY C. MICHAEL, Houston, Texas: Before discussing this case, I wish to say that a typical case of dermatosis papulosa nigra was presented here—Dr. Foerster's patient with cutis verticis gyrata. In the present case there were lesions on the face which clinically were characteristic of dermatosis papulosa nigra, but the larger lesions on the face and trunk were so unlike anything I have seen in that disease that I hesitate to accept the diagnosis. In our article we mentioned a case which resembled dermatosis papulosa nigra, but sections showed it to be adenoma sebaceum. I do not entertain that diagnosis in the present case, but believe that it may well belong in the syringoma group. In my opinion, a biopsy is required to settle the diagnosis.

DR. FRED WISE, New York: I agree that the lesions on the trunk resemble syringocystadenoma more than any other eruption.

DARIER'S DISEASE. Presented by DR. EDWARD A. OLIVER and DR. FRANK V. PLUMMER, Chicago.

A Bohemian housewife, aged 30, presented an eruption of fifteen years' duration. Her mother and a sister had a similar disorder, but a child 6 months old was free. There was mild pruritus, which was considerably worse in summer, when the disorder showed the greatest tendency to spread. She thought that the eruption began behind the ears and that subsequently over a period of years new areas appeared on the chest, back, pubic area, forearms and thighs.

The eruption was quite generalized, and the elementary lesion was a small, red papule with an adherent, fine scale. The lesions were discrete on the face, forehead and portions of the extremities and trunk, but in the areas mentioned the papules were larger, had a brownish tinge and had fused to form plaques with considerable inflammatory reaction.

A biopsy showed typical Darier's disease with follicular hyperkeratosis, some parakeratosis, irregular slight proliferation of the rete mucosum and typical spaces (*Lüken*) with *corps ronds* (round bodies) and "grains."

PSEUDOXANTHOMA ELASTICUM; ANGIOID STREAKS OF THE RETINA; OLD CHORIORETINITIS. Presented by DR. RUBEN NOMLAND and DR. BERTHA KLIEN, Chicago.

This case was published in full in the May, 1933, issue of the ARCHIVES, page 849.

DISCUSSION

DR. FRED D. WEIDMAN, Philadelphia: If any case of this type comes to necropsy, a histologic examination of the eye should be secured, for such an examination has never been performed. We need information as to whether the changes in the eye are xanthomatous or due to degeneration of the elastic tissue.

DR. KARL G. ZWICK, Cincinnati: I recently had an opportunity to examine the skin of a middle-aged patient with well developed angioid streaks. In this patient no pseudoxanthoma elasticum could be detected.

DR. FRED D. WEIDMAN, Philadelphia: I think that the blood cholesterol should be determined in all these cases.

DR. WALTER J. HIGHMAN, New York: I wish to ask why the blood cholesterol should be determined. So far as we know, this is a disease of the elastic tissue, and I should like to know what bearing a determination of the cholesterol has on the problem.

DR. FRED D. WEIDMAN, Philadelphia: The point is that in the final analysis the changes in the skin are fatty, and that they are being tied in more and more with the congener xanthomatous states, in which hypercholesteremia so frequently occurs. In the cases of xanthoma which I reported yesterday, I showed slides illustrating enlargement and yellowing of the vocal cords which were due not to xanthomatous infiltration but to yellowing elastosis of the vocal cords. They occurred in subdiabetic sisters, with intermittent hypercholesteremia.

DR. RUBEN NOMLAND, Chicago: The blood cholesterol in this case is normal. In the absence of Dr. Klien, I shall quote her opinion by stating that nineteen of the last twenty-one cases of angioid streaks of the retina reported in the literature were associated with pseudoxanthoma elasticum. She believes that the changes in the eyes are the same as those in the skin, and that they consist in a peculiar change in the elastic tissue. She also mentioned that the eye had never been examined histologically; she hopes to be able to do that in this case.

PEMPHIGUS ATYPICAL. Presented by DR. OLIVER S. ORMSBY, Chicago.

The patient was first seen in February, 1918, when he was 36 years of age and the disease was of five months' duration. He was presented at the May 18, 1921, meeting of the Chicago Dermatological Society for diagnosis of the condition;

pemphigus and lupus erythematosus were suggested in the discussion (ARCH. DERMAT. & SYPH. **4**:284 [Aug.] 1921). This case and two additional cases of ours were recorded under the title of "An Unusual Type of Pemphigus," by Senear and Usher (ARCH. DERMAT. & SYPH. **13**:761 [June] 1926).

When originally seen in 1918, the patient presented lesions on the trunk anteriorly and posteriorly, on the face over the nose and contiguous portions of the cheeks, on the forehead and ears and in the scalp. For ten years the disease continued with periods of activity and remissions. During the past five years only an occasional lesion appeared. On the trunk, discrete, crusted lesions were always present, beginning as vesicles or bullae. On the face, the lesions were never vesicular or bullous, but presented quite greasy, crusted, inflammatory patches closely resembling lupus erythematosus. During the first several years, the Nikolsky sign was positive in localized areas.

The Davis treatment for pemphigus finally yielded the best therapeutic result. Autoserum and other nonspecific protein therapy, arsenic and other measures were employed from time to time. Among others who considered the case one of atypical pemphigus was Prof. Bruno Bloch.

PEMPHIGUS, ATYPICAL (SCHMIDT TYPE). Presented by DR. OLIVER S. ORMSBY, Chicago.

The patient, a woman, was first seen in October, 1924, when she was 27 years of age; the disease was of eight years' duration. The lesions first appeared on the arms and back and two years later on the face. The early lesion was a bulla, which later became covered with a crust. Some of the lesions were grouped into patches, but isolated lesions were scattered over the involved surface—the face, back, breasts and legs—and were symmetrical. On the cheeks were palm-sized, well defined patches covered with large yellowish lamellae, which when detached left bleeding surfaces. Lesions varying in size from that of a pea to that of a dime were present elsewhere on the forehead, face and neck. From the nucha to the sacrum was a broad band of dirty, brown, crusted lesions varying in size from that of a dime to that of a quarter. Over the sacrum superficial bullae were present; over the sternum and breasts pigmented relics varying in size from that of a pea to that of a dime were noted; over the outer portion of the breasts larger crusted lesions were present, and on the arms pigmented relics were seen. On the legs, there were active bullae and crusted lesions. The transition from bullae to crusted lesions could be demonstrated.

Histologic examination showed moderate acanthosis and hyperkeratosis; increased pigmentation, with the granules discretely distributed throughout the cells of the epidermis; a few migratory blood cells in the epidermis; vascular degeneration in many epidermal cells, and only slight parakeratosis. In the upper corium there was a moderate cellular infiltration, consisting of small round and connective tissue cells together with a few plasma cells. Except for perivascular distribution in the pars reticularis, the infiltrate was limited to the papillary corium.

DISCUSSION

DR. A. BENSON CANNON, New York: While I have no reason to question the diagnosis of pemphigus in the case in which there is a lesion on the nose, I believe that we might consider one of lupus erythematosus. I had a case similar to this one a few years ago, with butterfly-shaped lesions over the nose and the adjacent parts of the cheeks and in an around the canals of the ears. The lesions were red, scaly and atrophic, with patulous follicles; they were telangiectatic and sharply limited and had red, raised borders. There was also a generalized bullous eruption with brownish-colored, pigmented, macular and crusted spots varying in size from that of a dime to that of a man's palm. When I presented the patient before the Section of Dermatology at the New York Academy of Medicine, the consensus was that he was suffering from pemphigus or from an eruption due to a drug. The case was followed for about five years and presented again

before the section at a recent meeting at the Academy; the patient was entirely free from all lesions with the exception of a typical discoid type of lesion of lupus erythematosus on the face, ears and scalp. Sections of the lesions removed from the face five years ago and again a few months ago showed pathologic changes similar to those found in lupus erythematosus. In view of this experience, I believe that there are types of lupus erythematosus which strikingly resemble pemphigus.

DR. F. E. SENEAR, Chicago: The man who was presented today was, I think, the first with a case of this type to be shown by Dr. Ormsby some years ago. The woman presented was one he allowed me to include in a group of cases I reported at that time. Since then I have seen a number of cases, as most of us have, and the question still remains as to whether these are all a type of benign pemphigus or whether some of the cases represent unusual forms of lupus erythematosus. In some instances the cases have run a course typical of pemphigus, and I think there is no doubt that some of them are definite cases of pemphigus. On the other hand, the report of Dr. Wise in the *Medical Record* and the report of Dr. Mook before this Association at the meeting in Toronto, Canada, tend to show that many cases that are the same clinically belong in the group of lupus erythematosus. I thought that one case in the group I used in my report, which Dr. Mook and Dr. Engman let me examine, was pemphigus. Dr. Mook later included that case in his group of unusual types of lupus erythematosus, and he had much more opportunity to observe the case than I.

DR. FRED WISE, New York: I wish again to call attention to the mistake of calling these cases the Senear-Usher type of pemphigus instead of the Senear-Usher type of lupus erythematosus. I agree with Dr. Ormsby and his pupils that at least some of these cases are probably mild or atypical, or benign, pemphigus, but that others are lupus erythematosus with vesicles or bullae.

DR. WALTER J. HIGHMAN, New York: The discussion is of interest to me because I never have been clear in my conception of what the syndrome really stands for. The term is being used vaguely, as are all terms associated with the names of authors. Thus ultimately the tendency develops for the situation to become confused so that shortly the term associated by the authors with a definite condition loses its meaning. What I wish to know is whether this is construed as a dermatosis which has the clinical characteristics of two other well known ones, whether it is lupus erythematosus or whether it is pemphigus, some of the cases of which merely simulate lupus erythematosus. There is nothing in the literature that I know of that touches on this question, which should be cleared up. The group is either lupus erythematosus or pemphigus, or something sui generis.

DR. OLIVER S. ORMSBY, Chicago: We had the original patient under observation in 1919, and the disease was then of six months' duration. The case has now been under observation for fourteen years. The patient did not respond to the usual treatment. He was presented before the Chicago Dermatological Society several times, always as having lesions resembling lupus erythematosus and pemphigus. This case and two others were incorporated by Dr. Senear and reported as cases of unusual pemphigus. Since then we have continued to observe this case and others, and there is no doubt in my mind that the two cases presented today are cases of atypical pemphigus. I am also sure that some others are cases of disseminated lupus erythematosus. At present the question cannot be settled as to whether or not this is a disease sui generis. The confusion existing as to the proper classification of these cases prompted my showing them today. Both of the patients presented showed symptoms of pemphigus, including the Nikolsky sign, and in both the condition has cleared up under the Davis treatment. The disease has run a benign course, and I have designated the condition from the beginning as atypical pemphigus. From the histologic specimens exhibited you see that the condition is not lupus erythematosus. Hamilton Montgomery and others have seen the sections and have ruled out lupus erythematosus. Atypical pemphigus, therefore, should be sufficient to indicate this group of cases. The Pels test has not been done.

PRURIGO NODULARIS. Presented by DR. EDWARD A. OLIVER and DR. RUBEN NOMLAND, Chicago.

A man, aged 47, had an itching disorder of the legs of about four years' duration. Each lesion started as a "pimple" which itched intensely and slowly enlarged. Previously lesions had appeared on the back of the neck.

Indiscriminately scattered over the front and calves of both legs were several dozen lesions, all of which were essentially identical. Each lesion was round or oval and about 1.5 cm. in its largest diameter. They were definitely elevated above the surface and quite sharply bordered. Most of the lesions were dry and slightly scaly, but many presented a moist, eroded surface. On the back of the neck and extending into the scalp were many indistinct, excoriated lesions.

A lesion on the leg was removed for microscopic examination.

DISCUSSION

DR. OLIVER S. ORMSBY, Chicago: Several years ago my colleague and respected chief, Dr. Hyde, reported a case of this type under the title of prurigo nodularis. Previous to this Dr. White recorded a similar case under the title of lichen obtusus corneus of Brocq. The point of chief interest at present is whether the disease is an entity or merely a form of lichenification. The French claim that the disease is due to scratching and is a nodular form of lichenification, as originally contended by Pautrier. The facts that the lesions appear and remain indefinitely, that the itching is limited to the lesion itself and that the lesions often recur if removed surgically point to a deeper pathologic cause than scratching alone. The title prurigo nodularis seems to be appropriate, and I should like to see it retained.

DR. JEFFREY C. MICHAEL, Houston: In view of the contention that prurigo nodularis may be a type of neurodermite, I think that the lesions on the patient's neck bear out this point of view. I wonder whether Dr. Ormsby considers this of any particular significance in this case.

DR. JOHN H. STOKES, Philadelphia: In a very pronounced case which I observed over a period of a year, the development of the lesions individually from what appeared to be follicular infections of a pseudofuruncular character could be studied. In their involution they seemed to have a suggestion of the acne keloid about them, and itched intensely; the nodules, being modified by scratching, persisted indefinitely. Since then I have observed a number of examples of itching, isolated nodules in the skin of the extremities apparently with a similar pathogenesis. On excision and examination, the pathologist usually returns no more enlightening diagnosis than one of chronic fibrosis. I wonder whether infection nidus may not contribute something to the formation of nodules in prurigo nodularis.

DR. OLIVER S. ORMSBY, Chicago: I did not examine the patient presented, but was discussing the disease. If this patient has mosaic lichenification together with nodular lesions, the case would favor the French view. In the cases I have seen, nodular lesions only have been present.

DR. EDWARD A. OLIVER, Chicago: The patient first appeared two years ago complaining of lichenification of the back of the neck accompanied by a superficial pus infection of the neck and nodules on the legs. He was given treatment with the roentgen rays, four one-fourth skin units at weekly intervals. The eruption on the neck cleared up under that treatment. He reported this winter with lesions on the legs. He was shown before our local society this winter. The case is a replica of the one reported by Pautrier as lichen obtusus corneus in the *Acta dermato-venerologica* (**8**:313 [Jan.] 1928). The lesions on the neck annoy him very little.

A CASE FOR DIAGNOSIS (EPITHELIOMA? DERMATITIS FACTITIA? DERMATITIS NODULARIS NECROTICA?). Presented by DR. CLARK W. FINNERUD, Chicago.

A man, aged 29, a mover of furniture, first noticed a pea-sized, hard nodule in the skin of the anterior surface of the left arm a little more than three years

prior to presentation. The nodule gradually enlarged to about the size of a small hen's egg, when it was removed surgically. The patient stated that owing to the nature of his work he received many minor injuries but had never had one that in any special way attracted his attention. Within the last one and a half years lesions had been developing about the left shoulder, the left arm and the left side of the chest anteriorly and posteriorly. He stated that these lesions were of approximately the same character as the original lesion, except that most of them became eroded and crusted in the center. He further stated that the histologic sections made at the time the original lesion was excised were considered by his physician to be cancer; this opinion was concurred in by one laboratory, but another laboratory considered the sections those of a spindle cell sarcoma. The Wassermann and Kahn tests were negative.

Examination revealed extensive scarring of the left arm from surgical excision and skin grafting and a dozen or more nodules varying in size from that of a pea to that of a dime on the areas mentioned, some of which were suggestive grossly of basal cell epitheliomas. Most of the lesions presented a pearly, rolled border and a necrotic, crusting center. There was also a marginal ulcer of the left upper lid, about 1 cm. in diameter, of similar character.

Cultures made on various mediums showed only contaminating fungi and Staphylococcus albus and aureus.

Histologic sections showed necrosis of the epidermis in the center of the lesion and marginal acanthosis. The corium throughout showed areas of cellular proliferation, especially in the lower portions around the hair follicles and sweat glands, the proliferating cells resembling both epithelial and connective tissue cells. There were moderate edema of the entire corium, vascular dilatation and cellular infiltration; the infiltration was largely lymphocytic but contained some areas rich in fibroblasts.

DISCUSSION

DR. WILLIAM H. MOOK, St. Louis: I think that this is a case of dermatitis factitia. The lesions are asymmetrically distributed and do not conform to anything else, especially infections. Taking the description of the lesions by the patient as a factor, I believe that the condition is factitious.

DR. MARTIN F. ENGMAN, St. Louis: The lesions are gangrenous in some instances, and the throat is anesthetic.

DR. JOHN H. STOKES, Philadelphia: While I concede the factitial suggestion, there are features of this case which suggest the type of hemangio-endothelioma or "angiosarcoma" of which Busman collected cases from the Mayo Clinic some years ago, assisted by Broders, who made the diagnosis from very early nodules, which were excised before necrosis and secondary infection had occurred. The presence of a lesion on the eyelid in this case is admittedly strongly against this possibility, but the subcutaneous nodule, the necrosis, the prolonged course and the youth of the patient were common elements in Busman's series. Paraffin sections of extremely early nodules are desirable for diagnosis.

DR. HENRY E. MICHELSON, Minneapolis: I examined the sections of the lesions from this patient, and there was a large area of denudation without any inflammation to account for the ulceration. I believe that the condition is self-inflicted.

DR. JOHN H. STOKES, Philadelphia: I did not for a moment suggest that the lesion begins as an ulcer, but specially emphasized that it begins as a nodule, as in this patient's case. The original nodule had developed to a considerable size before a surgeon excised it.

DR. CLARK W. FINNERUD, Chicago: Possibly a few points in the history which were not brought out clearly will help. The original lesion, which began about three years ago, was about the size of a split pea. It began deep in the skin, grew to the diameter of a dollar and never broke down, but remained hard. About eighteen months ago it was excised. Many of the men present today examined this patient carefully and noticed that he had completely anesthetic pupils

and fauces. This is interesting but may have nothing to do with his eruption. New lesions occur as deep nodules about the size of a pea, which are very hard. He says that the ones present today, if left for a few weeks, will become of the type of the other lesions. I do not believe that the condition is factitious or primarily inflammatory. It is probably a tumor. There is no puncture wound evident in the new nodules. We tried to get him to admit that he was producing the eruption, but were unsuccessful.

NOTE.—Since the presentation of this case, the patient has visited the Mayo Clinic, where serial sections from one of the lesions, as studied by Dr. Hamilton Montgomery, Dr. Paul A. O'Leary and Dr. Broders, proved the tumors to be grade IV epitheliomas.

LYMPHOGRANULOMA INGUINALE. Presented by DR. F. E. SENEAR, DR. MAX S. WIEN and DR. MINNIE O. PERLSTEIN, Chicago.

A German, aged 68, first complained of backache in October, 1930, with radiation of the pain to the right thigh and groin; within three weeks enlarged, moderately tender glands developed in the groin. The glands were incised in May, 1931, but continued to discharge, and new glandular swellings developed which followed the same indolent course, without healing after incision. New lesions appeared on the adjacent surface of the thighs and the abdomen. The patient said that he had not had any venereal disease, and stated that no penile lesion preceded the present condition. He first came under the observation of the presenters in January, 1932, and was shown at the March, 1932, meeting of the Chicago Dermatological Society. A detailed history appears in the transactions of that meeting (ARCH. DERMAT. & SYPH. **26**:1104 [Dec.] 1932).

Both groins and the adjacent portions of the thighs and abdomen, with greater involvement on the right side, were the sites of involuted and involuting brownish plaques and puckered scars, with a tendency to a linear arrangement in cordlike bands that showed some tendency to parallelism.

The original diagnosis was confirmed with Frei antigen supplied by Dr. Cole and Dr. Van Cleve; the patient gave a positive reaction to several authentic antigens with which he was tested.

The patient received treatment with intradermal injections of Frei antigen, with considerable improvement in both the local and the general condition. Preceding the intradermal treatment, he received subcutaneous injections of Frei antigen, as suggested by Hermans, with some improvement, but the improvement had been of a more rapid and progressive type since the institution of intradermal treatment.

LYMPHOGRANULOMA INGUINALE. Presented by DR. MAX S. WIEN and DR. MINNIE O. PERLSTEIN, Chicago.

A Negro, aged 48, gave the following history: In 1922 he had a slightly painful sore on the penis, which involuted within one week. One month later bilateral, painful inguinal adenitis developed; it involuted spontaneously. In 1924 he was operated on for fistula in ano, and since that time he had had persistently discharging sinuses of the buttocks and severe constipation, alternating at times with diarrhea and blood and pus in the stools. During the past year, he had had slowly progressing pain in the lumbar region.

Examination revealed multiple draining sinuses of both buttocks, with induration and a violaceous discoloration of this area. A rectal, conical stricture, situated about 4 cm. above the anal orifice, was found.

Frei tests had been repeatedly positive with varied antigens, and marked clinical improvement had occurred under intradermal treatment with the Frei antigen.

LYMPHOGRANULOMA INGUINALE. Presented by DR. MAX S. WIEN and DR. MINNIE O. PERLSTEIN, Chicago.

A Negress, aged 41, gave the following history: In 1932 a slightly painful swelling developed in the left inguinal region; the swelling ruptured and persisted as draining sinuses. For the past eight months she had had severe diarrhea, alternating with constipation.

Examination revealed granulomatous masses involving the external genitalia and anal region; granulomatous lesions in the vagina, with partial stricture of the vagina, and puckered violaceous scarring of the left inguinal region, with discharging sinuses at the base of the puckered lesion. An annular stricture of the rectum, situated about 3 cm. from the anal orifice, was noted.

Serologic tests of the blood were negative. Repeated Frei tests were strongly positive.

The general condition of the patient had markedly improved under intradermal treatment with the Frei antigen.

LYMPHOGRANULOMA INGUINALE. Presented by DR. MAX S. WIEN and DR. MINNIE O. PERLSTEIN, Chicago.

A Negress, aged 22, presented the following history: In 1930 enlargement and ulceration of the external genitalia began as a small, painless, shotty lesion on the vulva, which gradually enlarged.

Examination revealed an extensive, sharply defined, ulcerative and papillomatous process affecting the left labia majora and minora, the vestibular walls and the perineum, and extending for from 2 to 3 mm. onto the thighs. The clitoris was markedly enlarged and overhanging, measuring 5 by 3 by 2 cm. A serosanguineous discharge was present over the entire lesion, but there was no pain or tenderness.

Serologic tests of the blood were negative; no Donovan bodies were found in the lesions, and there was no evidence of a gonorrheal infection. Repeated Frei tests were positive.

Histologic examination revealed swelling and activation of the fibroblasts throughout a highly vascular subepithelial connective tissue and small focal accumulations of round cells irregularly scattered between the connective tissue. There were marked dilatation of the lumen and swelling of the endothelium of the blood vessels.

Since this patient was seen one month prior to presentation, superficial ulceration which clinically resembled granuloma inguinale had developed about the anus and the perineal area.

LYMPHOGRANULOMA INGUINALE. Presented by DR. MAX S. WIEN and DR. MINNIE O. PERLSTEIN, Chicago.

A Negress, aged 44, stated that since 1922 she had had alternating diarrhea and constipation, which had become progressively worse. About the time this condition developed she noted a "tumor" growing on the external genitalia, which reached its present size about four years prior to presentation. There had been marked loss in weight and pronounced weakness for the past year.

Examination revealed a fibrous mass the size of a baseball replacing the right labium majorum; infiltration of both buttocks, with firm, bluish to violaceous plaques and pedunculated, walnut-sized, tumor-like growths about the anus; multiple fistulas about the anal orifice, and a firm rectal stricture situated about 4 cm. above the anal orifice.

Serology tests of the blood were negative; repeated Frei tests were positive.

A diagnosis of estiomene and the genitorectal syndrome of lymphogranuloma inguinale was made. The general condition has improved markedly under intradermal treatment with the Frei antigen.

DISCUSSION

DR. HOWARD FOX, New York: I agree with the clinical diagnosis of all the cases except that of the colored woman with the lesions in the gluteal cleft. I think that she presented a typical picture of granuloma inguinale and not lymphogranuloma inguinale. I understand, however, that Donovan bodies were not found, but that the Frei test was positive.

DR. FRED D. WEIDMAN, Philadelphia: I thought that the condition was granuloma inguinale. If the Frei test was positive for this patient, it compromises the specificity of the Frei test.

DR. F. J. EICHENLAUB, Washington, D. C.: When I examined the case, the nurse in charge of this patient assured me that the eruption about the anal region, which appears to be typical granuloma inguinale, had developed since the patient's last visit to the clinic.

I believe that this patient has lymphogranuloma inguinale, and that the granuloma inguinale is a separate condition which has developed more recently.

DR. A. BENSON CANNON, New York: I agree with Dr. Fox that the case is most likely one of granuloma inguinale. I should like to know whether the Frei test is specific. Is one justified in making a diagnosis of lymphogranuloma inguinale on the positive Frei test alone in the absence of clinical symptoms or a history of venereal disease? We have made Frei tests in a number of cases of lymphogranuloma inguinale and in others as well, and we have met with several instances in which the patient has given a strongly positive reaction to the Frei test, and yet there has been no history of suppurating inguinal adenopathy.

DR. HAROLD N. COLE, Cleveland: I do not see any reason why it is not possible for a patient who has lymphogranuloma inguinale to contract another disease, and I think that that would easily explain the positive Frei reaction. We have made routine Frei tests in all of the cases of granuloma inguinale we have seen, and in some cases we did obtain a positive Frei reaction; however, if we carefully went back into the history we found something that would lead us to believe that in the past the patients had had lymphogranuloma inguinale. In contrast to Dr. Cannon, we have found the Frei reaction quite specific. Instead of making inoculations into animals I should think one would get much more benefit from taking some material from the patient, preparing an antigen and then making inoculations into patients with known lymphogranuloma inguinale. That is what Frei advised in cases of any type. I was much interested in the last case in this group and thought it a remarkable example of the disease described in 1848 by Huguier under the name esthiomene. I thought that this was a very interesting series of patients.

DR. MAX S. WIEN, Chicago: We presented this series of patients to show the clinical sequence we have seen in these cases at the Cook County Hospital and in Dr. Senear's service at the University of Illinois. In the patient with lesions in the gluteal cleft we felt that we were dealing with an ulceration which clinically resembled granuloma inguinale in a patient with lymphogranuloma inguinale. The photograph taken last November and exhibited with the patient showed no ulcerative lesions about the perineum. At that time there were a strongly positive Frei test and an existing esthiomene. We agree with Dr. Cole in regard to the specificity of the Frei test. We have made more than a thousand tests. While in some instances a pseudoreaction was noted within twenty-four hours, it was gone after forty-eight hours, and no infiltrated papule or residuum was noted at the tested site, such as is seen with a positive Frei test.

MILIA IN PEMPHIGUS. Presented by DR. OLIVER S. ORMSBY, Chicago.

A man, aged 52, presented a bullous disorder of one year's duration. Bullae had been generalized on the skin and had been noted on the buccal mucosa. During January and February, 1933, the patient was delirious for five weeks. The Davis treatment was employed, with apparent success. Myriads of milia had occurred on the legs, thighs and trunk.

DISCUSSION

DR. HOWARD FOX, New York: In my experience this case is absolutely unique. I understand that milia may at times occur in pemphigus, but a case with this enormous number of milia is entirely new to me, although I see a great deal of pemphigus in New York.

DR. OLIVER S. ORMSBY, Chicago: We are all familiar with milia in epidermolysis bullosa, but their occurrence in pemphigus is rare. I have never seen such a large number in any disease and presented the case as of interest from that standpoint.

ORIENTAL SORE. Presented by DR. T. K. LAWLESS and DR. S. J. ZAKON, Chicago.

A Hindu dental student, aged 25, left his home in the Punjab, where Delhi boil is very prevalent, in 1929, and ever since then has been in Europe and the United States. In August, 1932, he had a mild sore throat with fever and malaise, and about that time he noticed a swelling on his right elbow. When first examined, in the same month, the temperature was normal and the pulse rate 90. The blood was examined for malarial organisms because of an attack six years before, but none was found. The Wassermann and Kahn reactions were negative.

On his return, in March, 1933, a group of nodules was present on the right elbow and a patch of superficial ringworm dermatitis in the left axilla.

A biopsy was made, which gave no evidence of leprosy, but Lieshman bodies were found in abundance in the section and with less ease in the blood smear. The organisms had been grown by Dr. Evelyn B. Tilden.

The phytopharmacologic test on the blood serum was made by Dr. Pels and Dr. Macht in April and again in May, 1933, both tests showing a distinctly toxic condition; the last readings on two specimens gave 51 and 52 per cent, respectively.

A motion picture film, borrowed from the Rockefeller Institute by Dr. Tilden, who assisted Dr. Noguchi in its production, was presented, which showed the many variations of the organism.

DISCUSSION

DR. HOWARD FOX, New York: If Leishmania tropica has been found in this case, the diagnosis is settled. All patients with oriental sore recover spontaneously within a year, as the Turkish name of the disease ,"button of one year," would imply, and they do not have recurrences. The extraordinary part of this case is that the patient has been away from regions where the disease is endemic for more than three years. This would represent an extremely long period of incubation.

DR. KARL G. ZWICK, Cincinnati: I was under the impression that the man had returned to India in the meantime.

DR. ARTHUR W. STILLIANS, Chicago: This man has not returned to India. He has been in Europe and America all the time. In the literature there are cases on record in which the period of incubation was six months, so that a long period of incubation is not unknown.

PSEUDO-ATROPHIC DERMATOSIS OF THE NECK AND THE UPPER PART OF THE THORAX (PSEUDO-ATROPHODERMA COLLI). Presented by DR. S. WILLIAM BECKER and DR. K. B. MUIR, Chicago.

This article will appear in full in a later issue of the ARCHIVES.

LEUKEMIA, CHRONIC, MONOCYTIC AND MYELOGENOUS (NAEGELI TYPE). Presented by DR. T. K. LAWLESS (by invitation), Chicago.

An American housewife, aged 70, complained of a pruritic eruption of five years' duration, with gradual loss of hair. When first seen, in January, 1932, she was very pale, and there were patches of scaly erythema on the face, chest and limbs. The systolic blood pressure was 160. The liver was palpable below the costal margin; the spleen was palpable three fingerbreadths below the costal margin, and there was evidence of cardiovascular involvement.

The urine showed traces of albumin and a few granular casts. Many examinations of the blood were made, the results of which varied somewhat, but all

showed essentially the picture presented by the last examination on May 31, 1933: erythrocytes, 1,750,000; leukocytes, 13,825, and hemoglobin (Sahli), 41.6 per cent. A differential count showed: polymorphonuclear neutrophils, 4 per cent; mononuclears and transitionals, 25 per cent; eosinophils, 1 per cent; basophils, 1 per cent, and immature mononuclears, 38 per cent. Poikilocytosis and anisocytosis were marked. There were 3 normoblasts per hundred leukocytes, and there was basophilic degeneration in 2 cells per hundred leukocytes. One examination of the blood revealed 71 per cent immature mononuclears. On Feb. 3, 1932, the stomach contents showed no free hydrochloric acid.

Treatment consisted of the application of soothing lotions, roentgenotherapy in small doses and the ingestion of vitamin A in large doses, with some palliation of the pruritus. Iron, copper and cobalt nitrate seemed to have a beneficial influence on the blood and the general health.

Small, thin-walled vesicles appeared frequently on the cutaneous lesions, particularly on those on the palms, but did not appear following the administration of the iron, copper and cobalt mixture.

A biopsy specimen from one of the scaly red patches showed moderate hyperkeratosis, parakeratosis and acanthosis, with intercellular and intracellular edema. The interpapillary pegs were flattened. In all layers of the dermis the connective tissue fibers were coarser than normal, and the blood vessels were dilated and cuffed with an infiltrate of cells of the lymphatic order. The midzone of the corium was occupied with a fairly dense infiltrate with a tendency to form nests resembling glandular structures. The cells composing this infiltrate were chiefly myelocytes, many of them being monocytes with azurophilic granules. Some lymphocytes and plasma cells were also present.

ATROPHY (IDIOPATHIC) WITH POIKILODERMA-LIKE CHANGES. Presented by DR. EDWARD A. OLIVER, Chicago.

A man, aged 42, a lawyer, stated that the condition began in 1925 as a dry, scaling, ichthyosis-like condition on the lower parts of both legs, which gradually extended up the posterior aspect of the legs to the popliteal spaces. There has never been any pruritus, but small accuminate papules developed here and there. A patch of lesions on the left flank first appeared about three years prior to presentation, beginning as a small scaly area and gradually enlarging. Other patches have developed since that time.

The patient has always been well; he served in the army overseas for eighteen months and had two attacks of influenza while in the army. There had never been any cutaneous trouble in the family. His parents died of heart disease at the age of 65 and 73, respectively. He has never received any roentgenotherapy. His basal metabolic rate was 0. The systolic blood pressure was 132.

A roentgenogram of the sella turcica showed no evidence of bridging, erosion or tumors. The Wassermann, Kolmer and Kahn tests were negative. Urinalysis showed: specific gravity, 1.025; albumin, 0.05 per cent; some mucus, and no sugar. Examination of the blood showed: erythrocytes, 5,600,000; leukocytes, 8,100; hemoglobin, 82 per cent, and color index, 0.7. A differential count showed: small mononuclear lymphocytes, 27 per cent; monocytes, 9 per cent; neutrophils, 58 per cent, and eosinophils, 6 per cent.

A CASE FOR DIAGNOSIS (ICHTHYOSIS? PARAPSORIASIS?). Presented by DR. OLIVER S. ORMSBY, Chicago.

A man, aged 45, presented a disorder of ten years' duration when he was first seen in July, 1931. He complained of a dry skin, lack of perspiration and inability to stand heat. At that time there was a general furfuraceous scaling. The arms and forearms presented a mottled appearance, owing to retiform reddening; the dorsal aspects of the hands were livid red and somewhat thickened, the forehead and areas about the eyes being similarly affected. The ears were bluish red and telangiectatic. Retiform areas were present also over the rims of the pelvis.

Histologic examination revealed high grade hyperkeratosis of the epidermis, some parakeratosis and acanthosis, except over areas of cellular infiltration in the corium, where it was thinned and edematous. The corium showed a moderate round cell perivascular infiltration in the reticular layer. The coil glands were atrophic (Ebert).

At the time of presentation there was generalized scaling. On the arms and forearms the eruption consisted of small, bluish-red, scale-covered papules, and a similar condition was present on the sides of the trunk. Over the lower part of the abdomen the lesions were pigmented. The entire back presented small, colored and uncolored scaling papules. The hands were red and scale-covered on the dorsal surface. Over the flanks patches of deep bluish-red papules were observed, and on the lower extremities the lesions were paler. A diffuse scaling was present on the face, ears, neck and the front of the trunk.

The blood pressure was 160 systolic and 80 diastolic. Examination of the blood showed 7,400 leukocytes. A differential count showed: polymorphonuclear neutrophils, 58 per cent; lymphocytes, 28 per cent; large mononuclears, 6 per cent, and eosinophils, 8 per cent.

ATROPHODERMA WITH TELANGIECTASIA. Presented by DR. OLIVER S. ORMSBY, Chicago.

A Polish woman, aged 53, presented a disorder of forty-three years' duration. The case was fully described in the ARCHIVES (**18**:306 [Aug.] 1928; **20**:388 [Sept.] 1929; **21**:666 [April] 1930). The following is a brief abstract.

The first cutaneous change noted was a rough, chapped condition which began on the knees when the patient was 10 years old. It gradually progressed upward, involving the thighs and trunk in three years. During the next two years the upper extremities were involved; nodular lesions appeared in various areas during the following five years. As the disease progressed, redness, scaling and wrinkling occurred. The face was the last to become involved, about thirty-eight years after the onset. At this time the eruption was generalized and consisted of wrinkled, scaling, telangiectatic and atrophic patches of varying dimensions. In addition, there were thickened, scale-covered, pale red patches and superficial nodules. Over the breasts, on the external and internal surfaces of the arms and over the hips and buttocks were large patches in which the skin was wrinkled, atrophic and telangiectatic. In these areas red (telangiectatic) lines surrounded rhomboidal white areas, giving a striking appearance. The white areas measured 3 by 5 mm., each being encircled by a network of vessels. The thickened scaling patches were situated chiefly on the abdomen and the thighs. On one thigh near the knee were two rings of superficial, flat, pale red nodules. Pale red, scaling patches varying in size from that of a pea to that of a bean were present on the face, and moderate scaling was present in the scalp. Pruritus and burning sensations had been complained of during the entire time the patient had been under observation, but there had never been any visible evidence of scratching.

Histologic examination of a section removed from a patch near the axilla posteriorly showed a dense, sharply defined, cellular infiltration of the upper third of the corium, composed chiefly of lymphocytes; markedly dilated blood vessels; destruction of the elastic tissue and of some of the collagenous tissue, chiefly at the site of the cellular infiltration, and obliteration of the rete pegs. The epidermis was thinned in some areas (Finnerud). Histologic examination of a nodule removed from near the knee showed parakeratosis with collections of serum in the horny layer, acanthosis of psoriasiform type and partial absence of the stratum granulosum. The corium was edematous, its vessels were dilated in the subpapillary portion, and there was a fairly dense, rather sharply defined perivascular cellular infiltration.

At the time of presentation the eruption on the face had cleared up. The general scaling and wrinkling were reduced; the telangiectasia remained unchanged, and the atrophy was slightly increased.

Examinations of the blood and for changes in the glands of internal secretion revealed no demonstrable pathologic condition. Thyroid therapy seemed to be of some value.

POIKILODERMA ATROPHICANS VASCULARE. Presented by DR. MINNIE O. PERLSTEIN (by invitation), Chicago.

A Jewess, aged 45, presented a slowly progressive eruption of about ten years' duration, which was entirely asymptomatic.

The eruption consisted of generalized, roughly symmetrical, round plaques, varying in size from that of a palm to that of a plate, which involved the entire trunk, buttocks, thighs and arms, with smaller scattered lesions on the forearms. During the past two months the face had become involved.

The affected areas consisted of reticular atrophy and telangiectasia, and resembled radiodermatitis. The color varied from red to violet to brown. Several lesions, especially those on the back showed a tendency to nodular formation. Moderate scaling was present. On two occasions during the past two months vesicles had been observed on some of the lesions.

The patient's general condition had been unusually good. At the time of presentation she was going through the menopause, with the usual symptoms of flushing, headache and nervousness, and during the past month she had complained of pains in various muscles of the arms and legs. General physical examination gave essentially negative findings. There had been very little treatment.

The laboratory findings, repeated blood counts, serologic examinations and blood chemistry determinations had been negative; the basal metabolic rates were within normal limits.

A biopsy specimen removed from an infiltrated lesion on the back showed atrophy of the epidermis and slight edema. The upper part of the corium was edematous and showed loose mantles of round cells about the vessels, with occasional chromatophores in the papillary layer. The collagen fibers stained poorly in the upper part, and the elastic fibers were fragmented. A biopsy specimen removed from an atrophic lesion showed similar but more pronounced changes. The basal layer was broken in some places by the infiltrate, and the elastic fibers were almost entirely absent in parts of the papillary layer.

DISCUSSION

DR. WALTER J. HIGHMAN, New York: I shall not state which cases I think are poikiloderma and which I think are atrophy with telangiectasia. Without going into such particulars, I wish to point out that this group of essential telangiectatic diseases, together with their cognate relatives, like Majocchi's disease and angioma serpiginosum, represent a category of conditions in which the essential underlying features are similar. I do not mean that they are related etiologically, but that the basic elements in the clinical manifestations are the dilatations of tiny capillaries, the pigmentary disturbance, the atrophies and, in one group, the near remissions or improvement and in other groups an outcome that sometimes is fatal, as in some of the cases reported as poikiloderma vasculare atrophicans. Clinically, as in these cases, it is impossible, I believe, to be arbitrary as to whether to include them in the poikiloderma group or in the group of essential telangiectasias. There may be variations in the stage of development, and these cases persist for a long time before the final outcome. Any one's point of view may be applied to any particular case. One patient presented complained of itching. Dr. Ormsby's patient, who had a more extensive case, did not complain of itching, so far as I know.

DR. OLIVER S. ORMSBY, Chicago: This group of patients was presented with the hope that there would be a liberal discussion on an obscure condition. In the first place, in the case of the patient whose condition was presented for diagnosis, the probable diagnosis is ichthyosis and secondary parapsoriasis. In the case of the woman with telangiectasia about the breast and atrophy about the body resembling poikiloderma, all we can say is that it is one of atrophy and pigmentation. The histology is not that of poikiloderma, and it closely corresponds to that of idiopathic atrophy. Dr. Perlstein's case, I think, is a classic one of poikiloderma vasculare atrophicans of Jacobi.

DR. HOWARD FOX, New York: A few months ago Dr. Ormsby showed Dr. Wise and me the woman presenting numerous telangiectases but no pigmentation. While this is not a classic picture of Jacobi's disease, it seems to be related to it.

MYCOSIS FUNGOIDES. Presented by DR. OLIVER S. ORMSBY, Chicago.

A woman, aged 48, presented a disorder of eleven years' duration, which consisted of a generalized pruritic eruption. The disorder began on the legs and gradually spread. The lesions began as small, scaling areas which spread peripherally and healed in the center and were characterized by intense pruritus. At the original examination, in July, 1932, there were large plaques together with almost diffuse involvement of the skin of the back and the abdomen. The areas were dull red, infiltrated and scaling; in some areas there were flat-topped, raised, nodular plaques or tumors; in several areas there was definite atrophy.

A differential blood count showed: polymorphonuclear neutrophils, 59 per cent; lymphocytes, 35 per cent; eosinophils, 1 per cent, and microcytes, 5 per cent.

Under roentgenotherapy and internal medication the clinical signs have been much improved. After the absorption of infiltration, atrophy of the back, flanks and breast became more evident.

Histologic examination showed marked acanthosis and parakeratosis, microabscesses being present in some areas in and immediately beneath the stratum corneum. There was a mild, wandering cell infiltration of the epidermis. The upper third of the corium was the seat of a rather dense polymorphous, cellular infiltration. In the middle third and the lower portion of the corium the cellular infiltration was largely perivascular. Moderate vascular dilatation was seen throughout the corium.

DISCUSSION

DR. OLIVER S. ORMSBY, Chicago: When we first saw this patient a year ago, she had classic plaques and nodules of mycosis fungoides, which have cleared under treatment and in their place symptoms of idiopathic atrophy have supervened. This case now closely resembles the other atrophies exhibited here. Except for the lesions on the back, there is no activity of mycosis fungoides.

TULAREMIA. Presented by DR. ARTHUR W. STILLIANS and DR. T. K. LAWLESS, Chicago.

This patient was presented at the January, 1933, meeting of the Chicago Dermatological Society, and the case is reported in the ARCHIVES (**28**:250 [Aug.] 1933.

Blood cultures in dextrose agar and egg yolk agar and blood clots in dextrose and beef heart broth were negative.

The patient received six doses of a 1 per cent solution of antimony and potassium tartrate intravenously—from 0.3 cc. at three day intervals to 10 cc. at weekly intervals—without benefit. Sodium iodide—nine doses of from 10 to 20 cc. of a 20 per cent solution—was given intravenously at from three to five day intervals, without benefit. Pus from the abscesses was then diluted ten times and sterilized by heat; 0.1 cc. was injected intradermally, causing a marked

reaction, 4 by 5 cm. in area, nausea and palpitation. Several such injections had been made, with decreasing intensity of the reaction.

The epitrochlear glands had recently become swollen.

SARCOID. Presented by DR. O. H. FOERSTER, DR. HARRY R. FOERSTER and DR. L. M. WIEDER, Milwaukee.

A white woman, aged 63, recalled having a nodular growth on the outer portion of the right upper eyelid during childbirth, which enlarged slowly for a number of years, was partially destroyed by electrolysis and remained quiescent until about the age of 50. At that time the remaining lesion enlarged slowly, and smaller but similar nodules appeared in the vicinity, involving the eyelids, the eyebrows and the temporal region on the right side. (A photograph was presented, showing the picture observed in October, 1924). The nodules were elastic, reddish brown, smooth-surfaced and globular, and varied in size from that of a small split pea to that of a large filbert. After a short period of treatment with unfiltered roentgen rays and arsenic trioxide, which brought about some improvement, the patient disappeared from observation until July, 1931. (Photographs were presented showing the picture observed at that time.)

Subjective symptoms had been absent, and the nodules had remained discrete, failing to show spontaneous involution, confluence or ulceration until two years prior to presentation, at which time ulceration occurred on the right upper lid and the brow. A pendulous mass developed in 1929. Progressive involution took place under treatment with filtered roentgen rays at high voltage, arsenic in the form of pills and the Gerson-Sauerbruch diet. A palm-sized, nodular mass of lesions similar to those on the face developed in the right scapular area about six years previous to presentation. Excepting this group, the nodules were confined to the right side of the face from the forehead to the neck. There had been no other lesions of the skin, but in 1924 the patient exhibited discrete, enlarged, symptomless and movable nodules, varying in size from that of a pea to that of an almond, in the axillae and cervical regions, which were much reduced following roentgenotherapy.

The patient reported that both breasts were amputated in 1911 because of similar discrete nodules, and that nineteen teeth were extracted in 1923 because of the cutaneous nodules. The history was otherwise irrelevant. Fluoroscopic and roentgenographic examinations of the chest gave negative findings except for calcification and peribronchial thickening. The Wassermann reaction was negative.

Examination of the blood showed leukopenia and a relative increase of lymphocytes and eosinophils (leukocytes, 4,100; small lymphocytes, 26 per cent; large lymphocytes, 8 per cent; eosinophils, 5 per cent; polymorphonuclear neutrophils, 58 per cent; erythrocytes, 4,650,000, and hemoglobin, 90 per cent).

Two inoculations into guinea-pigs gave negative results for tuberculosis.

Histologic examination of tissue removed from the region of the eyebrow showed the picture of a chronic granuloma with an abundance of giant cells, epithelial cells, fibroblasts, eosinophils and round cells. Examination for tubercle bacilli gave negative results.

The patient was previously presented before the Chicago Dermatological Society in 1925, when a diagnosis of sarcoid was accepted. Dr. Otto Kren of Vienna, to whom Dr. Henry E. Michelson sent a photograph and slide, expressed himself against tuberculosis and in favor of a noninfective granuloma.

DISCUSSION

DR. E. P. ZEISLER, Chicago: Although I did not see the microscopic section, I thought that this was a typical case of lupus vulgaris.

DR. EDWARD A. OLIVER, Chicago: The improvement in this case has been so marked since Dr. Harry Foerster showed the patient several years ago that I think it would be interesting to have him tell us what they did for the patient.

DR. HARRY R. FOERSTER, Milwaukee: The points against lupus vulgaris and in favor of sarcoid in this case appear to have been the late development of the lesions, after the age of 50, their indolence and discrete nodular character, with a complete absence of necrosis or ulceration, and the absence of definite clinical or laboratory evidences of tuberculosis. The histologic picture has been against lupus vulgaris in the failure to show typical tubercle formations or areas of focal necrosis and in the exhibition of a polymorphous cellular infiltrate containing an abundance of eosinophils, in addition to epithelioid cells, fibroblasts and round cells, and some giant cells. The patient has been under treatment only during the last two years and exhibits a remarkable involution of the lesions. The therapy consisted of repeated moderate dosage of filtered roentgen rays, arsenic in the form of pills and a salt-free diet. At present the clinical picture is very suggestive of lupus vulgaris.

ERYTHEMA MULTIFORME. Presented by DR. OLIVER S. ORMSBY, Chicago.

A woman, aged 32, presented a cutaneous disorder of twenty-two years' duration. The disease had been characterized by recurrent attacks which were severe and accompanied by constitutional symptoms during the first fifteen years. For eleven years there was an annual recurrence, each lasting approximately three months. Since then the disease had run a mild and irregular course, with exacerbations rather than recurrent attacks. For many years the extremities and the entire trunk were the areas of chief involvement; later the abdomen and thighs only were affected. In severe attacks the lesions consisted of patches of papules of various sizes, papulopustules, vesicopapules, flat nodules of various sizes and nodular plaques. Sometimes the plaques spread peripherally and cleared in the center. They were brownish red, and the margins were greatly elevated and hard. Scars on the wrist, neck and back, which were produced during the first attack, had been much reduced by time. The constitutional symptoms consisted of elevation of temperature, nausea, vomiting and prostration.

Examinations of the blood revealed no abnormality other than an eosinophilia up to 8 per cent. The blood pressure and basal metabolism had remained normal.

Histologically, the disease proved to be a subacute inflammatory process compatible with erythema multiforme (Finnerud). The epidermis was of normal appearance except for excessive vacuolation of the prickle cell layer. No nuclei were seen in the horny layer. The papillary layer of the corium contained slightly dilated papillaries, but there was practically no edema or cellular infiltration in it. There was dense cellular infiltration of the reticular part of the corium, the infiltrate consisting principally of small round cells. Mast cells were present in excessive numbers, from 12 to 18 in each high-dry power field. The cellular infiltration was almost diffuse in some areas, but particularly marked about the blood vessels. There was edema of the reticular corium. The elastic tissue was either partially lacking or defectively stained in the papillary corium, but was well stained though considerably fragmented elsewhere. In that portion of the corium where the infiltration was most dense, there was practically no elastic tissue.

DISCUSSION

DR. JOHN H. STOKES, Philadelphia: When I saw this woman fifteen years ago at Rochester, N. Y., she had already had the chronic type of erythema multiforme for ten years, and had run the gamut of diagnosis depending on the various phases of the eruption, from dermatitis herpetiformis to pemphigus. She is better now than I have ever seen her. The only new line of investigation I can suggest is a study of the allergic background, complete in every detail. including an attempt to get at the bacterial allergies by a study of any accessible existing foci and of the flora of the respiratory and gastro-intestinal tracts. This is a colossal undertaking, but even one or two amateurish attempts we have made in recurrent cases have suggested possibilities.

DR. FRED D. WEIDMAN, Philadelphia: I was struck by the extremely deep infiltration of the lesions, which is not ordinarily seen in erythema multiforme. I wonder whether the case would fit in with what Wende described as erythema figuratum perstans.

DR. OLIVER S. ORMSBY, Chicago: Dr. Weidman's discussion brought up the question of the relation of multiform erythema and erythema perstans. This patient, shown as having erythema multiforme, has been under my observation for twenty-two years. The chief points of interest in her case are: first, the long duration; second, the severe constitutional reactions associated with recurrences during the first several years, and, third, the development of plaques of various sizes. The plaques were not a part of the disorder until ten years after its onset. They were variable as to size, sometimes being as large as the palm. They were elevated and hard, only slightly colored and often cleared in the center, producing a ring resembling erythema perstans. During the first several years she averaged three recurrences annually. With each recurrence there were constitutional symptoms consisting of elevation in temperature, malaise, gastrointestinal symptoms and headache. There were multiform lesions consisting of vesicles, pustules and, at a later date, plaques. During the last ten years the disease has been limited to the abdomen and the thighs, and the lesions have been largely confined to the plaques. Previous to that time the lesions occurred on the extremities, the face and the neck.

The only resemblance this case has to erythema perstans is in its duration. Possibly the plaques in certain stages resembled one form of these atypical erythemas.

There are four well defined types of atypical erythema. The first is clearly described by Wende under the title of erythema figurata perstans. The same disorder was described by Strempel as erythema gyratum persistens. The second type is that of Darier, described under the title of erythema annulare centrifugum. This type is rare; typical examples were recently described in this country by Butler. The third type is described by Jadassohn under the title of erythema simplex gyratum, while the fourth, erythema chronica migrans of Lipschutz, is the last type in which a single large ring occurs. Once in a while there are two rings. This group of persistent erythemas presents remarkable configurations at times and is quite distinct clinically from multiform erythema. The cases present no characteristic histologic features.

After consideration of the duration of multiform erythema it appears that there may be: first, a classic type which runs its course in from two to six weeks, which is recurrent annually or semi-annually and may last some time; second, a somewhat similar group of symptoms which, while recurrent, persist for a much longer time during recurrences and may have some symptoms all the time; third, a group of patients whom we place in the multiform erythema symptom complex group and in whom the lesions are produced by drugs, serums, infections and other readily recognizable factors.

GANGLIONEUROMA. Presented by DR. PAUL A. O'LEARY and DR. HAMILTON MONTGOMERY, Rochester, Minn.

The patient was previously presented at the October, 1932, meeting of the Chicago Dermatological Society, and the case is reported in the ARCHIVES (**27**: 846 [May] 1933).

The case will be reported in further detail in a later issue of the ARCHIVES.

LUPUS ERYTHEMATOSUS OF THE FACE WITH UNUSUAL LESIONS ON THE BACK RESEMBLING SUPERFICIAL EPITHELIOMA. Presented by DR. MICHAEL H. EBERT and DR. B. B. BEESON, Chicago.

A Lithuanian, aged 66, who had lived in the United States for forty-six years, presented an eruption on the face, scalp and back. The history was difficult to elicit because of language difficulties, but it was stated that the lesion anterior

to the right ear appeared three years previously and the others soon afterward, accompanied by no subjective sensation. Some material was injected into a lesion over the right scapula about a year prior to presentation, and about a month later the lesion broke down and ulcerated. The patient had a cataract on both eyes, with marked diminution of vision; otherwise, he had no complaints and felt well.

The Wassermann reaction of the blood serum was negative. A differential blood count revealed nothing of importance.

Examination showed on the lumbar region a well defined, dull red, slightly infiltrated plaque, irregularly oval and about 2 by 4 cm. in size. Nearby was a faintly scaly area, the size of a finger-nail, with a border which appeared to be slightly raised. This lesion was the color of the surrounding skin. Over the left scapula a dollar-sized plaque of the same type as the large one on the lumbar region was observed, and on the right scapula there was a papillomatous, fungating tumor of the same size. Anterior to the right ear, on the lower border, was an irregularly oval, atrophic, dull reddish, slightly depressed and somewhat scaly area. On each cheek were noted two atrophic areas the size of a finger-nail, and on the end of the nose, a dime-sized, slightly raised, dull red plaque with some dilatation of the follicular openings. The entire vertex of the scalp was bald, faintly red and somewhat infiltrated.

Histologic examination of the section taken from the nose disclosed the usual types of collagenous and elastic tissue degeneration found in discoid lupus erythematosus.

A section from the left scapula showed marked edema of the upper corium with dilatation of the blood and lymph spaces; there was a considerable round cell infiltrate in the upper third of the corium. The rete pegs were completely flattened, and the epidermis was edematous. There was an infiltration of the lower rete with leukocytes in places. In one area the edematous rete cells were multinucleated. The elastic tissue was almost completely absent in the upper third of the corium in the involved area, while in the surrounding unaffected skin it was normal.

The section taken from the papilloma on the right shoulder was made up of ordinary granulation tissue.

DISCUSSION

DR. PAUL A. O'LEARY, Rochester, Minn.: I could not pass an opinion on such short examination, but it seemed to me that the man had lupus erythematosus on the face, and that the lesions on the back should be part of the same process. The section shown, however, did not confirm this impression.

DR. WALTER J. HIGHMAN, New York: The condition impressed me as being dermatitis artefacta, and it is conceivable also that it is some form of leukemic infiltration.

DR. MICHAEL H. EBERT, Chicago: We saw this man for the first time a few days ago, and the sections were completed only a day or two ago. He presented two types of lesions, and it seemed hard to coordinate the ones on the back with those on the face. The condition on the nose is discoid lupus erythematosus, and the lesions on the back suggest some form of epitheliomatosis, but sections did not bear this out. I think that the whole process is lupus erythematosus. The papillomatous lesion was artifically induced by something injected into the skin, by some one else. Discoid lupus erythematosus of the face and back is, I believe, unusual.

DYSTROPHY OF THE HAIR AND NAILS; KERATODERMA OF THE PALMS AND SOLES; HYPOTHYROIDISM. Presented by DR. W. W. DUEMLING, Fort Wayne, Ind.

A farmer, aged 23, stated that for as long as he could remember he had had marked thickening of the palms and soles, together with a disturbance in the nails and general loss of hair. The nails were very brittle and broke so easily

that he did not recall ever having had more than half a nail on any of his fingers or toes. During the summer he was troubled particularly with infection of the nail beds; the palms and soles became very thick and hard but fissures did not develop. He was an adopted child and knew nothing of his family or forebears.

Examination showed a well developed and well nourished young man in good general health. The entire body was almost devoid of hair, excepting for a few scattered hairs on the scalp and eyebrows; there was some lanugo hair in the axillae and genital regions. The skin of the palms and soles was markedly thickened, the epidermis being thrown up into folds, but no fissuring was observed. Excessive perspiration was noted. The nails, which covered only about one half of the nail bed, were very ragged and split, with a heaping up at the free edge.

The laboratory findings were essentially negative, excepting for the basal metabolic rate, which was —13. There were no other developmental anomalies.

DISCUSSION

DR. W. W. DUEMLING, Fort Wayne, Ind.: Dystrophy of the hair, nails and skin with associated hypothyroidism was first reported about fifteen years ago (Barrett, A. M.: *Arch. Neurol. & Psychiat.* [Dec.] 1919). Since that time similar cases have been reported by Tobias (*J. A. M. A.* **84**:1568 [May 23] 1925) and Jacobsen (*J. A. M. A.* **90**:686 [March 3] 1928). Deficiency of the thyroid gland is pointed to as an etiologic factor. This is in keeping with the well recognized changes in the nails and hair found in cretins and in children with myxedema.

ACROMEGALY IN THE FORM OF CUTIS VERTICIS GYRATA. Presented by DR. EDWARD A. OLIVER, Chicago.

A white man, aged 48, entered the hospital on Feb. 3, 1933, complaining of headache and gradual enlargement of his hands, feet and face, which he first noted twelve years previously.

On three occasions the basal metabolic rate was +53, +43 and +48. The blood pressure was 154 systolic and 120 diastolic. The visual fields showed some constriction in the temporal halves and in the lower outer quadrants to form and color. Roentgenograms of the skull showed an enormously thickened bone, but the sella turcica was not ballooned out. The posterior clinoid processes were thick and rough. A roentgenogram of the heart showed it to be considerably enlarged to the left, and the ascending aorta was somewhat dilated. The appearance was that of left ventricular hypertrophy, probably due to aortovalvular disease.

The Wassermann and Kahn reactions were negative. Urinalysis showed a trace of albumin. A blood count showed: erythrocytes, 5,600,000; leukocytes, 8,600, and hemoglobin, 85 per cent.

CUTIS VERTICIS GYRATA, WITH ASSOCIATED PITUITARY DISEASE. Presented by DR. O. H. FOERSTER, DR. HARRY R. FOERSTER and DR. L. M. WIEDER, Milwaukee.

A Negro, aged 39, was first seen four years prior to presentation, when he had essentially the same clinical appearance, except for possible slight accentuation of the folds of the scalp and face since that time. His chief complaint when first seen was almost constant fronto-occipital headache and slow but progressive visual failure. These symptoms and the changes in the skin of the scalp and the face had progressed slowly over a period of about fifteen years, during which he had been treated on several occasions for cerebrospinal syphilis, with no improvement in his symptoms. There was no history of inflammatory disease of the scalp at any time. No similar changes in the skin had been noted in other members of the patient's family, and a brother who presented himself for another condition showed normal structures of the bony and soft parts.

Gross physical examination revealed little aside from the obvious changes in the scalp and face and prominence of the bony landmarks. Neurologic examination revealed a sluggish pupillary reaction to light and weakness of the left external rectus muscle. Examination of the eyes showed a pallid retina in the right eye; the retina in the left eye could not be seen. There were moderate contraction of the visual fields of the right eye and marked contraction of those of the left eye, this eye being almost sightless.

The temperature was normal. The blood pressure was 155 systolic and 100 diastolic. The Wassermann and Kline tests were repeatedly negative; an examination of the spinal fluid gave negative results. The urine was repeatedly negative for sugar, and a dextrose tolerance curve was within normal limits. A single basal metabolic test showed a rate of + 12. The complete blood count was normal. Examination of the blood chemistry showed nonprotein nitrogen, 37.3 mg.; urea, 27.5 mg.; sugar, 0.080 per cent; sodium chloride, 0.462 per cent; creatinine, 1.6 mg., and cholesterol, 0.133 per cent.

Roentgenograms of the skull showed marked thickening of the bones of the vault; the accessory sinuses were large, and there was prominence of the superior maxilla. The sella turcica was large, with thinning of the posterior clinoid processes and erosion of the left anterior clinoid and of the anterior portion of the floor of the sella on the left side extending into the sphenoid sinus. The distal phalanges of the hands exhibited the "sheaf of wheat" appearance described as occurring in acromegaly.

Repeated irradiation of the pituitary region usually resulted in reactions characterized by the accentuation of symptoms, but without visible improvement in the cutaneous manifestations or ultimate amelioration of symptoms.

DISCUSSION

DR. EDWARD A. OLIVER, Chicago: Following Fischer's classification, my case was shown as a case of acromegaly in the form of cutis verticis gyrata. It is not true cutis verticis gyrata, but acromegaly associated with changes in the scalp. This is the third case we have observed in Chicago this past year.

LUPUS VULGARIS. Presented by DR. F. E. SENEAR and DR. E. R. PACE, Chicago.

A woman, aged 46, a native of Lithuania, lived in that country until 26 years of age. She stated that an eruption began on the extensor surface of the left arm thirty years prior to presentation, spread to the trunk fifteen years later, and involved the face and scalp about five years previous to presentation.

The eruption consisted of marginated sheets with smaller patches and occasional satellite nodules involving the entire face, scalp and neck, except for a small area about the mouth, about three fourths of the surface of the back, buttocks and upper arms and to a lesser extent the anterior surface of the trunk and the thighs. The margins were sharp, dark red and puffy, often serpiginous in outline and frequently ulcerative. The central areas show a rather smooth, thin and adherent scarring in which were seen many apple jelly recurrences. On the back especially were noted thickly crusted ulcerations, some rupioid. There were marked mutilation of the left ear and the nose and severe ectropion.

The histopathologic changes were characteristic of lupus vulgaris. No tubercle bacilli were found.

A CASE FOR DIAGNOSIS (RAYNAUD'S DISEASE?). Presented by DR. MICHAEL H. EBERT and DR. B. B. BEESON, Chicago.

A white woman, aged 26, a native of Germany, emigrated to the United States eight years prior to presentation. Approximately ten months before presentation she sprained her left ankle, which remained painful and swollen; roentgenograms disclosed no fracture. The lameness persisted, and a bluish discoloration gradually appeared, first on the left foot and later on the right.

When she took a bath she noticed that the entire left lower extremity appeared redder than normal. Some time later her left knee became swollen. She was employed in a factory and performed her work while seated.

Examination showed involuting, right-sided, thoracic zoster, with tender right axillary adenopathy. When the patient stood for some time, both legs appeared cyanotic, the left more so. The left ankle was swollen; passive motion and pressure elicited pain. The superficial veins in the left thigh were definitely enlarged. The skin over both patellae was dark red, and there was a moderate infiltration in the region of the left prepatellar bursa. Several firm, hazelnut-sized, movable lymphatic glands were present in the left inguinal region, and a few pea-sized glands in the right. The buttocks were somewhat bluish. When the patient reclined, nearly all of the cyanosis disappeared.

Examination of the lungs showed nothing abnormal. The spleen was not palpable. Vaginal examination disclosed no pelvic mass. Roentgenograms of the lungs and of the right ankle revealed no apparent pathologic changes. The Wassermann reaction was negative.

DISCUSSION

DR. WALTER J. HIGHMAN, New York: I thought that the condition looked like the early stage of scleroderma.

DR. DUDLEY C. SMITH, University, Va.: This patient presented the history and clinical picture of fairly early Raynaud's disease.

AVITAMINOSIS, OR SCURVY. Presented by DR. THEODORE CORNBLEET, Chicago.

A white man, aged 45, gave a history of having lived on eggs, bread and a tiny piece of butter, poor soup and a small amount of potatoes. There had been no fruit, green vegetables, milk or meat in the diet for some time.

Examination showed moderate pallor, brownish discoloration of the face and hands due to exposure to the sun and the characteristic swollen, spongy, bleeding gums, which were soft and friable and growing over the teeth, especially over the molars and lower incisors. Petechial hemorrhages were noted on the lower extremities, localized in the hair follicles and varying from 2 to 5 mm. in size. There was swelling of the soft tissues over the left knee joint, with purplish-green discoloration; the same type of discoloration, marked induration and swelling of the right foot and ankle were noted. A large greenish discoloration was noted on the flexor surface of the right knee. Very little pain was experienced on deep pressure over the muscles.

A blood count showed: erythrocytes, 4,000,000; leukocytes, 4,200, and hemoglobin, 45 per cent. A differential count showed: polymorphonuclear neutrophils, 70 per cent; lymphocytes, 17 per cent; mononuclears, 6 per cent; basket cells, 4 per cent, and all other cells, 3 per cent. There were moderate achromia, polychromatophilia and poikilocytosis. A platelet count was normal. The bleeding time was four minutes; the coagulation time, three minutes.

NODULES, RHEUMATIC. Presented by DR. S. WILLIAM BECKER and DR. M. E. OBERMAYER, Chicago.

A woman, aged 52, stated that a lesion appeared on her right thumb sixteen years prior to presentation and was removed four years later. Four years before the appearance of this lesion she had an attack of acute rheumatic fever, with fever and migrating joint involvement, accompanied by pain, swelling and erythema. She was in bed and was an invalid for six months. Since the first tumor was removed others had appeared on the fingers, elbow and toe, which had not been painful except when traumatized. At the time of examination she felt well and had no arthritic pain. Her husband had tabes dorsalis, but the patient's nodules appeared one year before her marriage.

The Kolmer and Kahn reactions of the patient's blood serum and spinal fluid were negative. The blood cholesterol was 239 mg. per hundred cubic centimeters.

In order to eliminate the possibility of juxta-articular nodules due to syphilis, the patient was given a course of injections of bismuth, which produced no change in the lesion.

The patient also had lichen planus.

Sections from a lesion on the finger were examined. The epidermis showed the thickened epidermis which one would expect at the knuckle and signs of tension in the form of broad papillae and very broad rete processes. The vessels of the superficial corium were dilated, with mild perivascular round cell infiltration. The dermis was thick and involved by fibrosis, and there were many large necrotic noncaseous areas. In the border of these necrotic areas was a cellular infiltrate composed of a few round cells and some histiocytic cells with foam structure similar to that found in xanthoma cells. In some regions of the necrotic portions many cholesterol clefts were seen. Sections stained by means of scarlet red showed tiny fat droplets in the periphery of the necrotic areas.

DISCUSSION

Dr. Fred D. Weidman, Philadelphia: The histologic sections suggested granuloma annulare most strongly, which is in keeping with the discussion of that disease at the meeting yesterday, where it was brought out that that disease was not always, at least, tuberculous. Clinically, the condition might be regarded as erythema elevatum diutinum or as exaggerated rheumatic nodules, and in a case like this one should test for the presence of Streptococcus. There was a hyaline thrombosis of the capillaries; in the two cases which I studied the thrombus consisted of fibrin. The entire picture, clinically and histologically, is in keeping with the general group of rheumatic dermatoses.

Dr. S. William Becker, Chicago: I should like to know whether Dr. Weidman thinks that the hypercholesteremia has anything to do with the condition.

Necrobiosis Lipoidica Diabeticorum (Urbach). Presented by Dr. E. P. Zeisler and Dr. M. R. Caro, Chicago.

A man, aged 27, a native American, stated that he had had diabetes for six years and reddish "spots" on his legs for two and a half years. Five years prior to presentation he was placed on a diet low in carbohydrates and took insulin for a short period, but for the past four years he had been careless in his diet.

On admission to the hospital on May 17, 1933, urinalysis showed: volume, 2,520; specific gravity, 1.026; acidity; acetone, 3+; sugar, 176.92 Gm.; nitrogen, 20.93, and albumin, 0. The blood chemistry showed: sugar, 386; nonprotein nitrogen, 41; chlorides, 445; cholesterol, 310; uric acid, 4.6; calcium, 10.2; total fatty acids, 626.6, and carbon dioxide-combining power, 44.2. The blood picture was negative except for leukocytosis of 12,300. There was no evidence of lipemic retinitis. The Wassermann and Kahn reactions were negative. On one examination the basal metabolic rate was —4.6; later, it was +21.6 and +16.7.

Roentgenograms of the blood vessels of the leg did not reveal calcium. Physical examination, aside from the cutaneous lesions, revealed nothing abnormal.

Examination revealed roughly symmetrical cutaneous lesions, consisting of polycyclic, sharply defined plaques on the lateral aspects of the legs. The border of the plaques was of a firm, platelike, pseudosclerodermatous texture, did not pit on pressure and had a yellowish tint. The center was peculiar reddish brown or russet and was covered by a thin epidermis and fine scaling.

Under treatment with insulin and a diet containing 70 Gm. of protein, 116 Gm. of fat, and 125 Gm. of carbohydrates, the urinary sugar was reduced to 8.1 Gm. For the past few days the insulin had been given hypodermically under the lesions of the left leg, and these lesions had shown slight evidence of improvement. One patch on the right leg was being treated with ultraviolet radiation. Further studies on the lipoid metabolism were being carried out.

Sections were removed from the legs and stained with hematoxylin and eosin, van Gieson's stain, orcein, van Kossa's silver impregnation, Gram-Weigert stain, sudan III, sudan IV, gentian violet and ferrocyanide.

Histologic examination of a biopsy specimen taken from the center of a lesion on the anterior surface of the right leg (hemalum-eosin) showed flattening of the epidermis, with the loss of rete pegs, slight intercellular edema, a thin loose scale, a continuous granular layer and an intact basal layer. In the corium were several poorly defined necrotic masses composed of thick fibers which were wavy, parallel and densely packed, and which stained poorly. About these lay many fibroblasts and many foci of infiltration, composed largely of lymphocytes and histiocytes. Some of the superficial blood vessels were greatly dilated and were lined by a single layer of flat cells, while others, and also many deeper vessels, showed thickening of the wall to the point of occlusion and perivascular mantles of lymphocytic infiltration. This type of infiltration was especially dense just beneath the epidermis. At this level and in other perivascular foci there were many fine brownish pigment granules, which proved to be hemosiderin (ferrocyanide stain). Within the necrotic masses the collagen fibers stained poorly (van Gieson) and were fragmented and wavy, while the elastic fibers (Weigert) were absent. In the intervening tissue elastic fibers were fragmented and clumped. Many linear rows of fine fat droplets (sudan III) were present between the necrotic fibers; clusters of similar droplets lay within the foci of infiltration, and there was much fat in the scale. No foam cells or giant cells were seen. Polariscopic examination revealed no doubly refractile bodies. Amyloid was absent. No calcium could be demonstrated.

In a biopsy specimen taken from the border of the same lesion similar changes were found at one end, and these passed gradually into the adjacent normal tissue.

DISCUSSION

DR. FRED D. WEIDMAN, Philadelphia: To me this is the most remarkable case presented this afternoon. It illustrates how an underlying yellowing dermatosis—in this case probably degenerative elastosis—plays a part in complicating the characteristics of a lesion. Whereas the diabetic symptoms in this patient are very inconspicuous, the patient nevertheless has hypercholesteremia, which is consistent with the fatty changes in the lesions. The yellow features, however, are the minor phases of the pathologic lesions on the shins, and after that the question is what the original dermatosis may have been to which the yellow changes were added. Taken in conjunction with the other clinical features, I thought that it was a tuberculid, which is doing just a bit better than "necrobiosis." The primary focus of tuberculosis is not clear, but if one can be demonstrated—for example, if the patient has pulmonary tuberculosis—I think the thesis might be adopted that the pulmonary tuberculosis inaugurated the lesions, and, secondarily, the diabetes produced the superimposed yellowish changes of (fatty) degenerative elastosis.

DR. KARL G. ZWICK, Cincinnati: The description by Dr. Zeisler and Dr. Caro mentioned, if I remember correctly, that the polariscopic examination of the sections revealed only isotrope, i. e., no doubly refractive fatty material. In that case the fatlike substance in the section is not (chemically speaking) an ester of cholesterol but one of glycerol. Of course, this does not preclude the presence of hypercholesteremia in the patient, just as one exceptionally observes the reverse phenomenon—deposits of cholesterol in patients without hypercholesteremia.

In my cursory examination of a slide I found no *cellules xanthelasmiques* of Chambard (*Schaumzellen* of Touton). The absence of these cells might serve, if it is constant, as one additional histologic point of differentiation between necrobiosis lipoidica diabeticorum and xanthoma diabeticorum.

DR. E. P. ZEISLER, Chicago: Only two cases I have been able to find remotely resemble this one. One, described by Oppenheim, was, he claimed, a lipoid degeneration of the connective tissue, and the title "dermatitis atrophicans lipoidal diabetica" was suggested.

Urbach's case was identical histologically and in most of its clinical characteristics with the present case. Urbach's conception is that of a lipoid inhibition of primarily necrotic tissue. The lipoid which is present in excess in the blood is deposited not in the cells but between the cells. The necrobiosis is caused by toxic substances produced by the diabetic disease, an isotropic fat, which acts on the connective tissue. Further microchemical studies will be attempted in order to determine the nature of the fatty substance in the necrotic foci, and the case will be reported in detail later.

LUPUS ERYTHEMATOSUS (UNUSUAL CIRCUMORAL SCARRING AND EXTENSIVE INVOLVEMENT OF THE SCALP AND THE ORAL MUCOUS MEMBRANE). Presented by DR. E. P. ZEISLER, Chicago.

A man, aged 32, a postal clerk, presented a disorder of eight years' duration. It had become progressively worse each year, and during the past year his hair had fallen out extensively. Aside from a series of roentgen treatments four years prior to presentation, he had received no therapy. He attributed the scarring to the roentgenotherapy. There were no systemic symptoms.

On June 6, 1933, examination of the blood showed: erythrocytes, 4,340,000; leukocytes, 7,100, and hemoglobin, 80 per cent. A differential count showed: polymorphonuclear neutrophils, 65 per cent; lymphocytes, 32 per cent; monocytes, 2 per cent, and eosinophils, 1 per cent.

Three injections of gold sodium thiosulphate, of 10, 25 and 50 mg., respectively, had been given in the past few weeks, without any noticeable change.

The patient was presented because of the unusually extensive involvement of the scalp with follicular atrophic scarring, the typical eruption across the nose and cheeks and the unusual pitted scarring about the mouth, in which numerous small milia-like bodies could be seen. The lips and the inside of the cheeks were extensively involved. No biopsy specimen had been taken.

DISCUSSION

DR. E. P. ZEISLER, Chicago: Looking back on the sixty or seventy patients with lupus erythematosus under my care, I have never seen this peculiar picture of deep scarring in which small milia are found. I hope to get some further work done in the case.

Directory of Dermatologic Societies *

FOREIGN

British Association of Dermatology and Syphilology (Canadian Branch)

Alberic Marin, President, Drummond Medical Bldg., Montreal.
Antonio Sabetta, Secretary-Treasurer, 3435 St. Denis St., Montreal.
Place: Hamilton, Ontario. Time: 1934.

Royal Society of Medicine, Section of Dermatology

A. M. H. Gray, President, 30 New Cavendish St., W. 1, London.
W. N. Goldsmith, Secretary, 6, Upper Wimpole St., W. 1, London.

NATIONAL DERMATOLOGIC SOCIETIES

American Medical Association, Scientific Assembly, Section on Dermatology and Syphilology

C. Guy Lane, Chairman, 416 Marlboro St., Boston.
Harry R. Foerster, Secretary, 208 E. Wisconsin Ave., Milwaukee.
Place: Cleveland. Time: June 11-15, 1934.

American Dermatological Association

Harold N. Cole, President, 1422 Euclid Ave., Cleveland.
W. H. Guy, Secretary, 500 Penn Ave., Pittsburgh.
Place: New York. Time: June 7-9, 1934.

SECTIONAL DERMATOLOGIC SOCIETIES

Baltimore-Washington Dermatological Society

Harry F. Anderson, President, 1610, 20th St. N.W., Washington, D. C.
Joseph V. Kennedy, Secretary, 1835 Eye St., Washington, D. C.

Central States Dermatological Association

Joseph Brumberg, President, 528 Delaware Ave., Buffalo.
William F. Hoover, Secretary, 333 Linwood Ave., Buffalo.
Place: Buffalo. Time: 1934.

Iowa and Western Illinois Dermatological Association

J. C. Kessler, President, University Hospital, Iowa City.
Robert E. Jameson, Secretary, 1014 First National Bank Bldg., Davenport, Iowa.

New England Dermatological Society

Rudolph Jacoby, President, 270 Commonwealth Ave., Boston.
J. Harper Blaisdell, Secretary, 5 Bay State Road, Boston.
Place: Boston. Time: April 11, 1934.

Southern Medical Association, Section on Dermatology and Syphilology

Thomas W. Murrell, Chairman, 17 E. Grace St., Richmond, Va.
C. C. Dennie, Secretary, Professional Bldg., Kansas City, Mo.
Place: San Antonio, Texas. Time: November, 1934.

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* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up to date.

STATE DERMATOLOGIC SOCIETIES

Florida Society of Dermatology and Syphilology

Chairman for each meeting is elected from city in which meeting is held.
Elmo D. French, Secretary, 602 Huntington Bldg., Miami.
Place: Jacksonville. Time: July 2, 1934.

Louisiana Dermatological Society

J. A. Devron, President, 150 Baronne St., New Orleans.
M. T. Van Studdiford, Secretary-Treasurer, 912 Pere Marquette Bldg., New Orleans.

Medical Society of the State of New York, Section on Dermatology and Syphilology

George M. Fisher, Chairman, 264 Genesee St., Utica.
Frank Combes, Secretary, 80 W. 40th St., New York.

Medical Society of the State of Pennsylvania, Section on Dermatology

Herbert J. Smith, President, 3303 N. 17th St., Philadelphia.
Robert L. Gilman, Secretary, 1930 Chestnut St., Philadelphia.

Michigan State Medical Society, Section on Dermatology and Syphilology

Robert C. Jamieson, Chairman, 1551 Woodward Ave., Detroit.
A. R. Woodburne, Secretary, Grand Rapids Clinic, Grand Rapids.
Place: Battle Creek. Time: September, 1934.

Minnesota Dermatological Society

D. D. Turnacliff, President, 407 Medical Arts Bldg., Minneapolis.
L. H. Winer, Secretary, 522 Medical Arts Bldg., Minneapolis.
Time: First Wednesday in October, December, February and April.

Oklahoma Dermatological Association

W. A. Showman, President, 108 W. 6th St., Tulsa.
C. L. Brundage, Secretary, 505 Osler Bldg., Oklahoma City.

Texas Dermatological Society

Everett C. Fox, President, 1719 Pacific Ave., Dallas.
Everett R. Seale, Secretary, 1215 Walker Ave., Houston.

LOCAL DERMATOLOGIC SOCIETIES

Atlanta Dermatological Society

Francis G. Jones, President, 384 Peachtree St., Atlanta, Ga.
Charles A. Wilkins, Secretary, Medical Arts Bldg., Atlanta, Ga.

Bronx Dermatological Society

Samuel Feldman, Chairman, 1955 Grand Concourse, New York.
Henry Silver, Secretary, 290 West End Ave., New York.

Brooklyn Dermatological Society

Arthur Pevsky, President, 1750 Ocean Parkway, Brooklyn.
George F. Price, Secretary, 884 Lincoln Place, Brooklyn.
Time: Third Monday of each month except June, July, August and September.

Buffalo Dermatological Society

Joseph Brumberg, President, 528 Delaware Ave., Buffalo.
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CHICAGO DERMATOLOGICAL SOCIETY

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H. L. Keim, President, 10 Witherell St., Detroit.
William G. Saunders, Secretary-Treasurer, 9203 Grand River Ave., Detroit.

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Stanley O. Chambers, Chairman, 727 W. 7th St., Los Angeles.
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Howard Fox, Chairman, 140 E. 54th St., New York.
Mihran B. Parounagian, Secretary, 126 E. 39th St., New York.

MONTREAL DERMATOLOGICAL SOCIETY

J. F. Burgess, President, Drummond Medical Bldg., Montreal, Canada.
B. Usher, Secretary-Treasurer, 1538 Sherbrooke St., W., Montreal, Canada.

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY AND SYPHILIS

Leo Spiegel, Chairman, 241 W. 100th St., New York.
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Edward R. Maloney, President, 853 7th Ave., New York.
R. H. Rulison, Secretary, 145 E. 54th St., New York.

OMAHA DERMATOLOGICAL SOCIETY

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Donald J. Wilson, Secretary, 1216 Medical Arts Bldg., Omaha.

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PITTSBURGH DERMATOLOGICAL SOCIETY

Frederick Amshel, Chairman, 3401 5th Ave., Pittsburgh.
Bernhard Goldmann, Secretary, Jenkin's Arcade, Pittsburgh.

ST. LOUIS DERMATOLOGICAL SOCIETY

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M. F. Engman, Jr., Secretary-Treasurer, 3720 Washington Blvd., St. Louis.

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